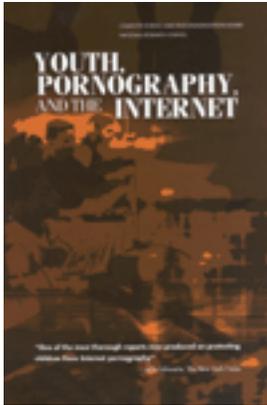


## Free Executive Summary

### Youth, Pornography, and the Internet



Dick Thornburgh and Herbert S. Lin, Editors, Committee to Study Tools and Strategies for Protecting Kids from Pornography and Their Applicability to Other Inappropriate Internet Content, National Research Council

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*The Internet has changed the way we access the world. This is especially true for kids, who soak up new technologies like eager little sponges. They have access to an enormous array of material, including educational links, sports info, chat rooms—and, unfortunately, pornography. But we must approach our need to protect children with care to avoid placing unnecessary restrictions on the many positive features of the Internet. Youth, Pornography, and the Internet examines approaches to protecting children and teens from Internet pornography, threats from sexual predators operating on-line, and other inappropriate material on the Internet. The National Research Council's Computer Science and Telecommunications Board explores a number of fundamental questions: Who defines what is inappropriate material? Do we control Internet access by a 17-year-old in the same manner as for a 7-year-old? What is the role of technology and policy in solving such a problem in the context of family, community, and society? The book discusses social and educational strategies, technological tools, and policy options for how to teach children to make safe and appropriate decisions about what they see and experience on the Internet. It includes lessons learned from case studies of community efforts to intervene in kids' exposure to Internet porn. Providing a foundation for informed debate, this very timely and relevant book will be a must-read for a variety of audiences.*

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## Executive Summary

The Internet is both a source of promise for our children and a source of concern. The Internet provides convenient access to a highly diverse library of educational resources, enables collaborative study, and offers opportunities for remote dialog with subject-matter experts. It provides information about hobbies and sports, and it allows children to engage with other people on a near-infinite variety of topics. Through online correspondence, their circles of friendship and diversity of experience can achieve a rich and international scope. [Section 1.1]

Yet press reports have suggested to many that their children are vulnerable to harm on the Internet. While only a small fraction of material on the Internet could reasonably be classified as inappropriate for children, that small fraction is highly visible and controversial.<sup>1</sup> If the full educational potential of the Internet for children is to be realized, such concerns must be reasonably addressed. [Section 1.1]

At the request of the U.S. Congress in 1998, the Computer Science and Telecommunications Board of the National Research Council assembled a committee with expertise in many fields. Based on a wide range of information sources as well as the committee's own expertise,

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<sup>1</sup>For purposes of this report, "material" refers to that which may be seen or read (e.g., images, movies, or text on a Web page), while "experiences" are interactive (e.g., talking to a stranger through instant messages or chat rooms). E-mail sent or received that is essentially advertising is "material," while a sequence of interactive e-mails corresponds to "experiences."

this report seeks to frame the problem in a legal, educational, technological, social, and societal context and to provide information useful to various decision-making communities—e.g., parents, the information technology industry, school boards, librarians, and government at all levels—about possible courses of action to help children be safer in their use of the Internet.

### DEFINITIONAL CONSIDERATIONS IN PROTECTING CHILDREN FROM INTERNET PORNOGRAPHY

The term “pornography” lacks a well-defined meaning. To be sure, broad agreement may be found that some materials are or are not “pornographic,” but for other materials, individual judgments about what is or is not “pornography” will vary. In recognition of this essential point, the report uses the term “inappropriate sexually explicit material” to underscore the subjective nature of the term. [Sections 1.2, 4.1]

The term “child” is also problematic. From birth to the age of legal emancipation covers a very wide developmental range. What is inappropriate for a 6-year-old to see may not be inappropriate for a 16-year-old to see, and in particular, older high school students have information needs for education that are very different from those of elementary school students. [Section 5.1 and Table 5.1]

Finally, “protection” is an ambiguous term. For example, does “protection” include preventing a child from obtaining inappropriate material (sexual or otherwise) even when he or she is deliberately seeking such material? Or, does it mean shielding a child from inadvertent exposure? Or, does it entail giving the child tools to cope effectively with exposure to inappropriate material if he or she should come across it? These scenarios pose conceptually different problems to solve. [Section 8.2]

All of these ambiguities complicate enormously the debate in communities about the nature of the problem and what might or should be done about it.

### SEXUALITY IN MEDIA

The fact that children can sometimes see—and even sometimes seek out—images of naked people is not new. However, compared to other media, the Internet has characteristics that make it harder for adults to exercise responsible supervision over children’s use of it. A particularly worrisome aspect of the Internet is that inappropriate sexually explicit material can find its way onto children’s computer screens without being actively sought. Further, it is easy to find on today’s Internet not only images of naked people, but also graphically depicted acts of hetero-

sexual and homosexual intercourse (including penetration), fellatio, cunnilingus, masturbation, bestiality, child pornography, sadomasochism, bondage, rape, incest, and so on. While some such material can be found in sexually explicit videos and print media that are readily available in hotels, video rental stores, and newsstands, other sexually explicit material on the Internet is arguably more extreme than material that is easily available through non-Internet media. [Section 1.2]

The Internet also enables many strangers to establish contact with children. While many interactions between children and strangers can be benign or even beneficial (e.g., a student corresponding with a university scientist), strangers can also be child predators and sexual molesters. Face-to-face contact with such individuals may be traumatic and even life-threatening for a child; for this reason, Internet-based interaction (which includes chat rooms, instant messages, and e-mail dialogs, and which could involve the transmission of sexually explicit material as one component) that can lead to face-to-face contact poses a greater potential danger to children than does the passive receipt of material—even highly inappropriate material—per se. The anonymity and interaction-at-a-distance of using the Internet prevent a child from using cues that arise from face-to-face interaction to help judge another's intent (e.g., gestures, tone of voice, age). [Sections 1.3 and 5.5]

### THE LEGAL CONTEXT

The legal context for sexually explicit material is driven by the First Amendment to the Constitution, and three categories of sexually explicit material are subject to government regulation. *Obscenity* is sexually explicit material that violates contemporary community standards in certain specified ways. (How the appropriate "community" is defined is a matter of great uncertainty, especially in an Internet context.) *Child pornography* is material that depicts a child engaged in a sexual act or "lewd" exhibition of his or her genitals. Obscenity and child pornography enjoy no First Amendment protection. A third category of sexually explicit material that is not obscene and not child pornography can be *obscene for minors*; such material may be regulated for minors but must be freely available to adults. [Section 4.1]

### NEW TECHNOLOGY, DIFFERENT ECONOMICS

Searching the Internet for information is generally enabled by "search engines" that accept a few user-typed terms and return to the user links to Web pages that refer to those terms. A search engine can be used to find information on science, sports, history, and politics, as well as sexually

explicit material. Furthermore, because of ambiguities in language (e.g., “beaver” has both sexual and non-sexual connotations), a search will sometimes return links to material that is not related to what the user is trying to find. In some cases, that unrelated material will contain sexually explicit content when it was not sought. [Section 2.3 and Box 2.3]

A second common use of the Internet is to communicate with others. However, the Internet is designed in such a way that it transports bits of information without regard for the meaning or content of those bits. Thus, Internet traffic can contain a letter to one’s aunt, a chat about sports, a draft manuscript for a report, or sexually explicit images. Furthermore, controlling traffic demands special effort at the sending and/or receiving points. [Section 2.1 and Box 2.2]

The Internet is also a highly anonymous medium. Such anonymity can be advantageous for a teenager who finds answers on the Internet to questions that he or she is too embarrassed to ask an adult. It can also be disadvantageous, in that someone can conduct antisocial or criminal activities (e.g., child sexual solicitation) with less fear of identification and/or sanction than might be true in the physical world. [Sections 2.1, 2.3]

Information technology drives the economics of information on the Internet. Because information can be represented in digital form, it is very inexpensive to send, receive, and store. Thus, for a few hundred dollars to cover the cost of a digital camera and a Web site, anyone can produce sexually explicit content and publish it on the Web for all to see. Furthermore, because the Internet is global, regulatory efforts in the United States aimed at limiting the production and distribution of such material are difficult to apply to foreign Web site operators. [Section 2.1]

Sources of inappropriate sexually explicit material on the Internet are commercial and non-commercial. The commercial source is the online adult entertainment industry, which generates about a billion dollars a year in revenue from paying adults. (For comparison, the adult entertainment industry as a whole generates several billion dollars a year—perhaps as much as \$10 billion.) According to the best information available to the committee, U.S. business entities in the industry support around 100,000 sites (globally, there are about 400,000 for-pay adult sites). Globally, sexually explicit Web pages constitute a few percent of the 2+ billion publicly accessible Web pages as of this writing. [Section 3.1]

For many online adult entertainment firms, profitability depends on drawing a large volume of traffic in a search for paying customers, and many seek revenue through the sale of advertising that typically makes no effort to differentiate between adults and children. Further, the aggressive marketing campaigns that firms need to stand out in a highly saturated market—where margins are inherently low and traffic is therefore critical to economic survival—inevitably reach both minors and

adults. The exposure of minors to such material is thus a side effect of the effort to reach large numbers of paying customers. [Section 3.2]

To date, public debate has focused largely on commercial dimensions of inappropriate sexually explicit material on the Internet. But there are many non-commercial sources of inappropriate sexually explicit material on the Internet, including material available through peer-to-peer file exchanges, unsolicited e-mail, Web cameras, and sexually explicit conversation in chat rooms. Solutions that focus only on commercial sources will therefore not address the entire problem. [Section 5.4]

### THE IMPACT OF SEXUALLY EXPLICIT MATERIAL ON CHILDREN

Perhaps the most vexing dimension of dealing with children's exposure to sexually explicit material on the Internet is the lack of a clear scientific consensus regarding the impact of such exposure. Nonetheless, people have very strong beliefs on the topic. Some people believe that exposure to certain sexually explicit material is so dangerous to children that even one exposure to it will have lasting harmful effects. Others believe that there is no evidence to support such a claim and that the impact of exposure to such material must be viewed in the context of a highly sexualized media environment. [Chapter 6]

It is likely that individuals on both sides of the issue could reach agreement on the undesirability of exposing children to depictions of the most extreme and most graphic examples of sexual behavior, in the sense that most individual parents on each side would prefer to keep their children away from such material. The committee concurs, in the sense that it believes that there is some set of depictions of extreme sexual behavior whose viewing by children would violate and offend the committee's collective moral and ethical sensibilities, though this sentiment would not be based on scientific grounds. However, protagonists in the debate would be likely to part company on whether material that is less extreme in nature is inappropriate or harmful: such material might include information on sexual health, the depiction of non-traditional "scripts" about how people can interact sexually, and descriptions of what it means to be lesbian or homosexual in orientation. [Sections 7.3, 7.4]

Extreme sexually explicit imagery to create sexual desire on the one hand, and responsible information on sexual health on the other, are arguably unrelated and, many would contend, easily distinguished. But much content is not so easily categorized. While some extreme sexually explicit material meets legal tests for obscenity (and therefore does not enjoy First Amendment protection), less extreme material may not—and material described in the previous paragraph, lingerie advertisements,

and models in swimsuits generally do enjoy First Amendment protection, at least for adults and often for children. [Section 7.3]

In short, sexually oriented content that falls outside the realm of extreme sexually explicit imagery is likely to be the source of greatest contention, and there are arguments about whether such content would be subject to regulatory efforts aimed at reducing the exposure of minors to material that is or may be sexual in nature. [Section 7.3]

### **PATHS OF EXPOSURE**

Children may be exposed to inappropriate Internet material or experiences through a variety of channels, including Web pages, e-mail, chat rooms, instant messages, Usenet newsgroups, and peer-to-peer file-sharing connections. Furthermore, the exposure may be sought by the child (i.e., deliberate) or unsought by the child (i.e., inadvertent), and there are many forms of each kind of exposure. An example of deliberate exposure occurring is when a child searches for sexually explicit terms in a search engine and clicks on the links returned. An example of inadvertent exposure occurring is when a child receives unsolicited e-mail containing sexually explicit material or links to such material. [Section 5.4]

### **IDENTIFYING INAPPROPRIATE MATERIAL**

Three methods can be used to identify inappropriate material. Whether machine or human, the agent that makes the immediate decision about the appropriateness of content can do so based on its specific content, rely on a tag or label associated with the material, or examine the source of the material (or a combination of these factors). [Section 8.1]

In practice, the volume of material on the Internet is so large that it is impractical for human beings to evaluate every discrete piece of information for inappropriateness. [Box 2.6] Moreover, the content of some existing Web pages changes very quickly, and new Web pages appear at a rapid rate. Thus, identifying inappropriate material must rely either on an automated, machine-executable process for determining inappropriate content or on a presumption that everything that is not explicitly identified by a human being as appropriate is inappropriate. An approach based on machine-executable rules abstracted from human judgments inevitably misses nuances in those human judgments, which reduces the accuracy of this approach compared to that of humans, while the presumption-based approach necessarily identifies a large volume of appropriate material as inappropriate. [Section 2.3]

All mechanisms for determining if material is appropriate or inappropriate will make erroneous classifications from time to time. But note that

such misclassifications are fundamentally different from disagreement over what is inappropriate. Misclassifications are mistakes due to factors such as inattention on the part of humans or poorly specified rules for automated classification. They will inevitably occur, even when there is no disagreement over the criteria for inclusion in various categories. In contrast, disagreements over what is appropriate result from differences in judgment—Person A says, “That material is inappropriate” and Person B says of the same material, “That material is not inappropriate.” Both of these issues exacerbate the problem of putting into place a systematic way to protect children. [Box 12.1]

### CONCEPTS OF PROTECTION

Whether protection is based on law, technology, or education, it generally involves some combination of the following concepts: [Section 8.6]

- *Restricting a minor to appropriate material* through techniques that give a minor access only to material that is explicitly judged to be appropriate;
- *Blocking inappropriate material* through techniques that prevent a minor from being exposed to inappropriate material;
- *Warning a minor of impending exposure to inappropriate material or suggesting appropriate material*, leaving him or her with an explicit choice to accept or decline a viewing;
- *Deterring the access of minors to inappropriate material* by detecting access to such material and imposing a subsequent penalty for such access;
- *Educating a minor about reasons not to access inappropriate material* in order to inculcate an internal sense of personal responsibility and to build skills that make his or her Internet searches less likely to turn up inappropriate material inadvertently;
- *Reducing the accessibility of inappropriate material* so that inappropriate material is harder for minors to find;
- *Reducing the appeal of deliberate contact with inappropriate material* by making access to the material (and only such material) more difficult, cumbersome, and inconvenient; and/or
- *Helping a minor to cope with the exposure to inappropriate material* that will most likely occur at least occasionally with extended Internet use.

All of these concepts have costs and benefits. Any party seeking to decide on an appropriate mix of approaches based on these concepts must consider the extent and nature of physical, emotional, developmental, social, ethical, or moral harm that it believes arises from exposure to inappropriate material or experiences. Greater costs may be justifiable if

the presumed harm is large and highly likely, or if young children rather than youth in late adolescence are involved. [Section 14.4]

Differing institutional missions must also be considered. A public school serves the primary purpose of providing academic instruction for individuals that have not attained the age of majority. By contrast, a public library serves the primary purpose of providing a broad range of information to the entire community in which it is based, including children and adults, and the information needs of the community—taken as a whole—are generally much more diverse than those of children and youth in school. Thus, it is not surprising that schools and libraries have different needs and might take different approaches in seeking to protect children and youth from inappropriate Internet material and experiences. [Section 8.4]

## APPROACHES TO PROTECTION

### Public Policy

Public policy to affect the supply of inappropriate sexually explicit material can operate to make such material less available to children. For practical and technical reasons, it is most feasible to seek regulation of commercial sources of such material—because these seek to draw attention to themselves (and non-commercial sources generally operate through private channels). Public policy can provide incentives for the adult online industry to take actions that better deny children's access to their material and to some extent to reduce the number of providers of such material. [Chapter 9]

Public policy can go far beyond the creation of statutory punishment for violating some approved canon of behavior to include shaping the Internet environment in many ways. For example, public policy can be used to reduce uncertainty in the regulatory environment; promote media literacy and Internet safety education (including development of model curricula, support of professional development for teachers on Internet safety and media literacy, and encouraging outreach to educate parents, teachers, librarians, and other adults about Internet safety education issues); support development of and access to high-quality Internet material that is educational and attractive to children in an age-appropriate manner; and support self-regulatory efforts by private parties.

### Social and Educational Strategies

Social and educational strategies are intended to teach children how to make wise choices about how they behave on the Internet and to take control of their online experiences: where they go; what they see; what they do; who they talk to. Such strategies must be age-appropriate if they are to be effective. Further, such an approach entails teaching children to be critical, skeptical, and self-reflective of the material that they are seeing.

An analogy is the relationship between swimming pools and children. Swimming pools can be dangerous for children. To protect them, one can install locks, put up fences, and deploy pool alarms. All of these measures are helpful, but by far the most important thing that one can do for one's children is to teach them to swim. [Section 10.3]

Perhaps the most important social and educational strategy is *responsible adult involvement and supervision*. [Section 10.4] *Peer assistance* can be helpful as well, as many youth learn as much in certain areas from peers or near-peers (e.g., siblings) as they do from parents, teachers, and other adult figures. [Section 10.5] *Acceptable use policies* in families, schools, libraries, and other organizations provide guidelines and expectations about how individuals will conduct themselves online, thus providing a framework within which children can become more responsible for making good choices about the paths they choose in cyberspace, thereby learning skills that are relevant and helpful in any venue of Internet usage. [Section 10.6]

*Internet safety education* is analogous to safety education in the physical world, and may include teaching children how sexual predators and hate group recruiters typically approach young people, how to recognize impending access to inappropriate sexually explicit material, and when it is risky to provide personal information online. *Information and media literacy* provide children with skills in recognizing when information is needed and how to locate, evaluate, and use it effectively, irrespective of the media in which it appears, and in critically evaluating the content inherent in media messages. A child with these skills is less likely to stumble across inappropriate material and more likely to be better able to put it into context if and when he or she does. [Section 10.8]

The greater availability of *compelling, safe, and educational Internet content* that is developmentally appropriate, educational, and enjoyable material on a broad range of appealing or helpful topics (including but not limited to sex education) would help to make some children less inclined to spend their time searching for inappropriate material or engaging in inappropriate or unsafe activities. Greater availability entails both the development of new appropriate content, as well as portals and Web sites

designed to facilitate easy access to existing appropriate content. [Section 10.9]

*Public service announcements and media campaigns* could help to educate adults about the need for Internet safety and about the nature and extent of dangers on the Internet. Such campaigns are best suited for relatively simple messages (e.g., “be aware of where your child is on the Internet” and “ask for parental controls when you subscribe to an Internet service provider”). [Section 10.10]

Social and educational strategies focus on the nurturing of personal character, the development of responsible choice, and the strengthening of coping skills. Because these strategies locate control in the hands of the youth targeted, children have opportunities to exercise some measure of choice—and as a result some children are likely to make mistakes as they learn to internalize the object of these lessons. [Section 10.11]

These strategies are not inexpensive, and they require tending and implementation. Adults must be taught to teach children how to make good choices on the Internet. They must be willing to engage in sometimes-difficult conversations. They must face the trade-offs inevitable with pressing schedules of work and family. And these strategies do not provide a quick fix. But in addition to teaching responsible behavior and coping skills for when a child encounters inappropriate material and experiences on the Internet, they are relevant to teaching children to think critically about all kinds of media messages, including those associated with hate, racism, senseless violence, and so on; to conduct effective Internet searches for information and to navigate with confidence; and to make ethical and responsible choices about Internet behavior—and about non-Internet behavior as well. [Section 10.11]

### Technology-Based Tools

A wide array of technology-based tools are available for dealing with inappropriate Internet material and experiences. *Filters*—systems or services that limit in some way the content to which users may be exposed—are the most-used technology-based tool. [Section 12.1] All filters suffer from both false positives (overblocking) and false negatives (underblocking). However, filters can be highly effective in reducing the exposure of minors to inappropriate content if the inability to access large amounts of appropriate material is acceptable. Teachers and librarians most commonly reported that filters served primarily to relieve political pressure on them and to insulate them from liability (suggesting that filter vendors are more likely to err on the side of overblocking than on underblocking). In addition, filters reduced the non-productive demands on teachers and librarians who would otherwise have to spend time watching what stu-

dents and library patrons were doing. Note also that filters can be circumvented in many ways, the easiest way being to obtain unfiltered Internet access in another venue (e.g., at home).

*Monitoring* of a child's Internet use is another technology-based option. [Section 12.2] Many monitoring options are available (e.g., remote viewing of what is on a child's screen, logging of keystrokes, recording of Web pages that he or she has visited)—and each of these options can be used surreptitiously or openly. Surreptitious monitoring cannot deter deliberate access to inappropriate material or experiences, and raises many concerns about privacy (for example, in a family context, it raises the same questions as reading a child's diary or searching his or her room covertly). Furthermore, while it probably does provide a more accurate window into what a child is doing online compared to the lack of monitoring, it presents a conflict between taking action should inappropriate behavior be discovered and potentially revealing the fact of monitoring.

The major advantage of monitoring over filtering is that it leaves the child in control of his or her Internet experiences, and thus provides opportunities for the child to learn how to make good decisions about Internet use. However, this outcome is likely only if the child is subsequently educated to understand the nature of the inappropriate use and is reinforced in the desirability of appropriate use. If, instead, the result of detecting inappropriate use is simply punishment, the result is likely to be behavior motivated by fear of punishment—with the consequence that when the monitoring is not present, inappropriate use may well resume. Clandestine monitoring may also have an impact on the basic trust that is a foundation of a healthy parent-child relationship.

*Age verification technologies* (AVTs) seek to differentiate between adults and children in an online environment. [Section 13.3] A common AVT is a request for a valid credit card number. Credit cards have some meaningful effectiveness in separating children from adults, but their effectiveness will decline as credit-card-like payment mechanisms for children become more popular. Other AVTs can provide higher assurance of adult status, but often at the cost of greater inconvenience to at least some legitimate users.

A number of other technology-based tools are discussed in the main report.

## OVERALL CONCLUSIONS

Contrary to statements often made in the political debate, the issue of protecting children from inappropriate sexually explicit material and experiences on the Internet is very complex. Individuals have strong and

passionate views on the subject, and these views are often mutually incompatible. Different societal institutions see the issue in very different ways and have different and conflicting priorities about the values to be preserved. Different communities—at the local, state, national, and international levels—have different perspectives. Furthermore, the technical nature of the Internet has not evolved in such a way as to make control over content easy to achieve. [Section 14.1]

There is no single or simple answer to controlling the access of minors to inappropriate material on the Web. To date, most of the efforts to protect children from inappropriate sexually explicit material on the Internet have focused on technology-based tools such as filters and legal prohibitions or regulation. But the committee believes that neither technology nor policy can provide a complete—or even a nearly complete—solution. While both technology and public policy have important roles to play, social and educational strategies to develop in minors an ethic of responsible choice and the skills to effectuate these choices and to cope with exposure are foundational to protecting children from negative effects that may result from exposure to inappropriate material or experiences on the Internet. [Section 14.3]

Technology can pose barriers that are sufficient to keep those who are not strongly motivated from finding their way to inappropriate material or experiences. Further, it can help to prevent inadvertent exposure to such materials. But, as most parents and teachers noted in their comments to the committee, those who really want to have access to inappropriate sexually explicit materials will find a way to get them. From this point, it follows that the real challenge is to reduce the number of children who are strongly motivated to obtain inappropriate sexually explicit materials. This, of course, is the role of social and educational strategies. [Section 14.4]

As for public policy, the international dimension of the Internet poses substantial difficulties and makes a primary reliance on regulatory approaches unwise. Absent a strong international consensus on appropriate measures, it is hard to imagine what could be done to persuade foreign sources to behave in a similar manner or to deny irresponsible foreign sources access to U.S. Internet users. [Section 14.4]

This is not to say that technology and policy cannot be helpful. Technology-based tools, such as filters, provide parents and other responsible adults with additional choices as to how best to fulfill their responsibilities. Law and regulation can help to shape the environment in which these strategies and tools are used by reducing at least to some extent the availability of inappropriate sexually explicit material on the Internet, for example, by creating incentives and disincentives for responsible business behavior. Moreover, developments in technology can help to inform

and support policy choices, and public policy decisions necessarily affect both technology and the nature and shape of parental guidance. In concert with appropriate social and educational strategies, both technology and public policy can contribute to a solution if they are appropriately adapted to the many circumstances that will exist in different communities. In the end, however, values are closely tied to the definitions of responsible choice that parents or other responsible adults wish to impart to their children, and to judgments about the proper mix of education, technology, and policy to adopt. [Section 14.3]

Though some might wish otherwise, no single approach—technical, legal, economic, or educational—will be sufficient. Rather, an effective framework for protecting our children from inappropriate materials and experiences on the Internet will require a balanced composite of all of these elements, and real progress will require forward movement on all of these fronts. [Section 14.3]



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Committee to Study Tools and Strategies for Protecting  
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**COMMITTEE TO STUDY TOOLS AND STRATEGIES  
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AND THEIR APPLICABILITY TO OTHER  
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## Preface

Youth, pornography, and the Internet. The combination of these elements is a subject on which individuals from all walks of life—parents, teachers, librarians, school administrators, library board members, legislators, judges, and other concerned citizens—have thoughts and strong opinions. Those with products and services to sell are also interested in and concerned about the subject. Some from the online adult entertainment industry fear that efforts to restrict the access of children to certain kinds of sexually explicit material on the Internet will impinge on what they see as legitimate business opportunities to market their products and services to adults. Those with technology-based protection systems to sell hope to capitalize on what they see as a growing market for solutions to the problem, however that may be defined.

Views in this subject area are highly polarized. Because strongly held values are at stake, the political debate is heated, and often characterized by extreme views, inflammatory rhetoric, and half-truths. Against the backdrop of intense lobbying in the halls of Congress and many local school and library board meetings in communities across the country, a document assembling in one place the different dimensions and pros and cons of approaches that might be taken to address the problem can help to conduct the debate over “what to do” in a more informed manner.

Thus, one purpose of this report is to provide a reasonably complete and thorough treatment of the problem and potential solutions that airs all sides. In addition, different communities or groups of readers are likely to be interested in different aspects of this report.

- Parents will be interested in its description and assessment of a reasonably comprehensive set of tools and strategies for protecting their children on the Internet from exposure to inappropriate sexually explicit material (and other inappropriate material for that matter), many of which can be deployed in their homes. Furthermore, to the extent that parents understand the advantages and disadvantages of these various tools and strategies, they can engage their legislators and local administrative bodies more effectively.

- Adults responsible for children and youth in other settings—school, libraries, after-school programs, camps, and so on—will be interested in this description and assessment as well for classroom and other purposes, but also in the political and organizational issues that surround the use of these various tools and strategies. Those responsible for education broadly construed will also be attentive to the issues related to material that is improperly or incorrectly identified as inappropriate for children and youth.

- The information technology (IT) sector is likely to be interested in finding business opportunities for helping parents and others deal with the issues as they see fit, while many commercial interests in the IT sector and in other corners are concerned about the possibility of regulation.

- Law enforcement agencies may be interested in this report to help clarify their roles and responsibilities in both preventive and tactical operations, and may benefit from the report's overview about existing law in this area. The judiciary, especially at the local level, may find perspective and understanding that can be useful in trying and hearing cases touching on the subject matter of this report.

- Policy makers will be interested in all of these dimensions of the issue, and must decide how to weigh them in their attempts to formulate appropriate policy. Further, much of this report points to legal, economic, technical, and social realities that affect how legislation and regulation might actually play out.

### ORIGIN OF THIS STUDY

In November 1998, the U.S. Congress mandated a study by the National Research Council (NRC) to address pornography on the Internet (Box P.1). In response to this mandate, the Computer Science and Telecommunications Board (CSTB), responsible within the National Academies for issues at the nexus of information technology and public policy, engaged the NRC's Board on Children, Youth, and Families (BOCYF) to form a committee with expertise diverse enough to address this topic. The resulting committee was composed of a diverse group of people, including individuals with expertise in constitutional law, law enforcement, libraries and library science, information retrieval and representa-

**Box P.1**  
**Legislative Language That Led to This Study**

In Public Law 105-314, the Protection of Children from Sexual Predators Act of 1998, Title IX, Section 901, the U.S. Congress passed the following legislation:

SEC. 901. STUDY ON LIMITING THE AVAILABILITY OF PORNOGRAPHY ON THE INTERNET.

(a) IN GENERAL—Not later than 90 days after the date of enactment of this Act, the Attorney General shall request that the National Academy of Sciences, acting through its National Research Council, enter into a contract to conduct a study of computer-based technologies and other approaches to the problem of the availability of pornographic material to children on the Internet, in order to develop possible amendments to Federal criminal law and other law enforcement techniques to respond to the problem.

(b) CONTENTS OF STUDY—The study under this section shall address each of the following:

- (1) The capabilities of present-day computer-based control technologies for controlling electronic transmission of pornographic images.
- (2) Research needed to develop computer-based control technologies to the point of practical utility for controlling the electronic transmission of pornographic images.
- (3) Any inherent limitations of computer-based control technologies for controlling electronic transmission of pornographic images.
- (4) Operational policies or management techniques needed to ensure the effectiveness of these control technologies for controlling electronic transmission of pornographic images.

(c) FINAL REPORT—Not later than 2 years after the date of enactment of this Act, the Attorney General shall submit to the Committees on the Judiciary of the House of Representatives and the Senate a final report of the study under this section, which report shall—

- (1) set forth the findings, conclusions, and recommendations of the Council; and
- (2) be submitted by the Committees on the Judiciary of the House of Representatives and the Senate to relevant Government agencies and committees of Congress.

Based on this language and as noted in the text, the statement of task was negotiated with the Department of Justice in ways that would lead to a report that placed the issue of concern in context and would provide a range of useful alternatives for constituencies affected by this issue. The charge below guided the work of the Committee to Study Tools and Strategies for Protecting Kids from Pornography:

The project, requested by the U.S. Congress, seeks to frame the problem in an appropriate social, legal, educational, technological, and ethical context; present what is and is not scientifically known about the impact on children of exposure to sexually explicit material; and provide information useful to various decision-making communities (e.g., parents, the information technology industry, school boards, librarians, and government at all levels) about possible courses of action across educational, legislative, law enforcement, and technological fronts. While it does not present explicit recommendations about actions that should be taken, it does provide findings and conclusions that result from committee deliberations.

tion, developmental and social psychology, Internet and other information technologies, ethics, and education.

CSTB, with input from BOCYF, developed a proposal that was responsive to the legislative mandate. As a result of discussions with the Department of Justice's Office of Juvenile Justice and Delinquency Prevention, the Department of Education, and various private companies in the information technology industry, the study's statement of work was adjusted to include non-technological strategies as well as technology options for protection and to address "pornography" as the primary systematic focus of the study's exploration of inappropriate content, with other areas addressed as appropriate for context-setting purposes, explored incidentally rather than systematically.

Further, the negotiated statement of work noted that the final report would place the issue of concern in context, provide a range of useful alternatives for constituencies affected by this issue, and explicate the foundation for a more coherent and objective local and national debate on the subject of Internet "pornography," but would avoid making specific policy recommendations that embed particular social values in this area.

## METHODOLOGY AND CAVEATS

As with most controversial issues, the reality of both problem and solution is much more complex than the rhetoric would indicate. To complement the expertise of its members and to understand the issue more effectively, the committee took a great deal of testimony over the course of its study. In its plenary sessions, it heard testimony from some 20 parties with differing points of view and expertise; these parties are identified in Appendix A (which provides the agendas of the various plenary sessions). It held two workshops to explore both technical and non-technical dimensions of the issue; summaries of these workshops were published prior to the publication of this report.<sup>1</sup>

Members of the committee also visited a range of communities across the United States to hear firsthand from the various constituencies—not the least of which were the children involved. Thus, the committee conducted seven site visits from April through June 2001 in a variety of

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<sup>1</sup>See National Research Council and Institute of Medicine, 2001, *Nontechnical Strategies to Reduce Children's Exposure to Inappropriate Material on the Internet: Summary of a Workshop*, Board on Children, Youth, and Families and Computer Science and Telecommunications Board, Joah G. Iannotta, ed., National Academy Press, Washington, D.C.; and Computer Science and Telecommunications Board, 2002, *Technical, Business, and Legal Dimensions of Protecting Children from Pornography on the Internet: Proceedings of a Workshop*, National Academy Press, Washington, D.C.

geographical locales: Austin, Texas, on April 3-4; Greenville, South Carolina, on April 17-18; Salt Lake City, Utah, on April 26-27; San Diego, California, on May 2-3; Blacksburg, Virginia, on May 8-9; Coral Gables, Florida, on May 30-June 1; and Redding, Shelton, Bristol, Kent, and Hamden, Connecticut, on June 1-2.

Finally, the committee issued a call for white papers and received about 10 (all of which are posted on the project Web site at <<http://www.itasnrc.org>>). The committee noted the existence of other work and reports on the subject, such as the final report of the COPA Commission,<sup>2</sup> the report of the House Committee on Commerce on the Children's Online Protection Act,<sup>3</sup> *Safeguarding the Wired Schoolhouse* from the Consortium on School Networking,<sup>4</sup> and various efforts supported by the Bertelsmann Foundation (e.g., *Protecting Our Children on the Internet*<sup>5</sup>). And, because the committee was, by design, composed of individuals with varying expertise and perspectives on the issues, the committee learned from itself—through argument and discussion. As a result of this process, it is fair to say that every committee member came to understand the issue differently than when he or she first joined the study—and left behind any notion that an instant solution could be found.

This study is not a comprehensive study of safety on the Internet, nor even one on safety for children on the Internet. The primary emphasis of this study is on approaches to protect youth from pornography—or more properly, sexually explicit material deemed inappropriate for minors—though the relevance of these approaches to some other kinds of material deemed inappropriate receives some attention as well. This emphasis does not reflect a consensus of the committee that inappropriate sexually explicit material is—or is not—the most important safety issue on the Internet for children, but rather the fact that such material was a central element in the legislative mandate to the committee.

This study is not a study on the impact of exposure to such material, nor does it come to a consensus on this question. Committee members had, and continue to have, a variety of different views. Committee members do share common views about the undesirability of exposing children to some kinds of sexually explicit material, but they do not share

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<sup>2</sup>The COPA Commission was established as part of the Child Online Protection Act, discussed in Chapter 4. Information on the COPA Commission can be found online at <<http://www.copacommission.org>>.

<sup>3</sup>H.R. No. 105-775.

<sup>4</sup>Consortium for School Networking. 2001. *Safeguarding the Wired Schoolhouse*. Available online at <[http://www.safewiredschools.org/pubs\\_and\\_tools/white\\_paper.pdf](http://www.safewiredschools.org/pubs_and_tools/white_paper.pdf)>.

<sup>5</sup>Jens Waltermann and Marcel Machill, eds. 2000. *Protecting Our Children on the Internet*. Bertelsmann Foundation Publishers, Gutersloh, Germany.

views about other kinds of sexually explicit material. But coming to consensus on a world view regarding all sexually explicit material was not the task given to the committee, and the consensus on the material contained in this report—which focuses on things that communities can do to help themselves—indicates that such agreement is not necessary for making informed decisions.

Note also that this report mentions a variety of companies, products, services, and Web sites. These references are for illustrative purposes only, and their mention should not be taken by readers as an endorsement in any way.

### SCOPE AND PURPOSE OF THIS REPORT

This report surveys the technical, legal, law enforcement, educational, and economic dimensions of the problem of coping with materials and experiences on the Internet that are inappropriate for children. In addition, it describes a range of social and educational strategies, technology-based tools, and legal and regulatory approaches that can help children to use the Internet more safely. Thus, this report provides a framework within which responsible adults can develop their own approaches—embodying their own values—for the children in their care.

This study does not make recommendations about what communities should do about the problem. Although this study explicates the factors that can enter into choices about appropriate approaches to protecting kids from inappropriate sexually explicit material on the Internet, the choice of any particular approach implies a particular weighting of these various factors, and hence embeds a particular value choice, which the committee was not charged to make. Rather, the study emphasizes the information needed to conduct a reasoned discussion among those seeking to decide what to do. Any given community's decision will be shaped by the values it brings to that decision-making process.

### ACKNOWLEDGMENTS

Many people contributed to this complex study and comprehensive report. The committee took testimony from many individuals at its plenary sessions and at site visits. The site visits in particular were valuable precisely because they gave committee members a sense of life “in the trenches,” allowing them to put into appropriate perspective the input received during plenary sessions and contributed in white papers. (Appendix A provides the agendas of all meetings and site visits.)

Talking to children about their perceptions and reactions to sexually explicit material on the Internet is obviously a sensitive and delicate un-

dertaking, and the committee is deeply grateful to those individuals and schools that allowed their students, teachers, and administrators to speak freely with committee members and staff.

These site visits would not have been possible without the assistance of people at each locale. The committee and staff would like to acknowledge the following individuals:

- In Austin, Jeanette Larson, youth services manager, Austin Public Library, provided numerous leads regarding whom to contact to arrange focus group sessions. Many thanks also to Randy Strickland for brokering sessions with students and teachers at John Connally High School in Pflugerville, Texas; Sulema Vielman, for sessions with librarians at Cepeda Branch Library, Austin, Texas; Julia Cuba of the Girl Scouts Lone Star Council for her advice; and Angela Knott-Fryer of Settlement Home.

- Arrangements in Greenville were facilitated by Norman Belk, immediate past president of the South Carolina Library Association, and Beverly White, executive director, Education Technology Services, the School District of Greenville County. The committee is also grateful to Rosia Gardner of Mauldin Middle School, Simpsonville, South Carolina; Michael Evans, branch manager of the W. Jack Greer Library of Mauldin; Sheila Bradley and Rodney C. Thompson of the Phillis Wheatley Association, Greenville; and Ginger Stuart, interim principal, Greenville Senior High Academy of Academic Excellence.

- The committee thanks Chip Ward, assistant director, and Nancy Tessman, director, of the Salt Lake City Library, for their willingness to host sessions, make contacts, and suggest leads to staff. It also thanks Laura Hunter, director of content, Utah Education Network; Paula Houston, obscenity and pornography complaints ombudsman, Office of the Attorney General; Clint Spindler, principal, Tooele Junior High School, Tooele, Utah; and Sandra Shepard, principal, Tooele High School, Tooele, Utah, for their contributions to the site visit.

- In San Diego, Suzanne Hess of El Cajon Library in El Cajon and Charlie Garten, director of technology in the Poway Unified School District, were pivotal in organizing library and school sessions. The committee also thanks Paul Robinson, Rancho Bernardo High School; Walter Desmond, Lincoln High School, San Diego; and Andrea Skorepa, director, Florencia Gomez, youth service director, and Teresa Murillo, computer lab coordinator at Casa Familia in San Ysidro, for hosting focus group sessions.

- Sincere thanks are extended to Peggy Meszaros, director of the Center for Information Technology Impacts on Children, Youth, and Families at the Virginia Polytechnic Institute and State University, for her

extensive help in identifying and arranging focus groups in Blacksburg, Virginia. The committee also thanks Gary McCoy, principal of Blacksburg Middle School; Mary Fain, principal of Blacksburg High School; and Andrew Michael Cohill, director of Blacksburg Electronic Village, for their contributions to the site visit.

- In Coral Gables, Florida, the committee appreciates the assistance of Anne Thompson, program commissioner of the National PTA; Karin Brown, president of Miami-Dade County PTA; Joyce Corces, Coral Gables High School; Alexander Rodriguez-Roia, Boys and Girls Club of Miami; and Jenine Gendron, Fischler Graduate School of Education and Human Resources, Nova Southeastern University, Ft. Lauderdale.

- In Connecticut, the committee appreciates the assistance of Arlene Liscinsky, treasurer of the Connecticut State PTA, for the Shelton visit; Therese Duncan, vice president for legislation of the Connecticut State PTA, for the Kent visit; Deborah Walsh, president of the Connecticut State PTA, for the Hamden visit; and Beverly Bobroske, president of the Connecticut Association of Boards of Education, for the Bristol visit.

Most of all, the committee appreciates the parents and students for their frank participation in the focus group sessions that took place during the site visits.

In the initial stages of project development, David Eisner from America Online was instrumental in convening representatives from the online industry to discuss the project. As a result of these meetings, the NRC came to understand the concerns of this community in greater detail.

The committee members also extend their appreciation to the numerous presenters who briefed them during the project. Of particular interest was a special session at the committee's December 2000 workshop with community teams. Team members were charged with listening to the expert presentations and then applying what they had learned, as well as their own experience, to a hypothetical scenario. Committee members engaged community teams as they reported their thoughts about application. The purpose of this activity was to provide information to the committee regarding how the expert but largely theoretical testimony might be interpreted and applied in practical terms by education and library professionals working in the field. For their participation in this activity, the committee thanks Paulette Armstrong, Carol Bird, Stephen Boyles, Trina Brown, Andy Carvin, Deb Elder, Marjorie Geldon, William Giddings, Wayne Hartschuh, Marge Medd, David Milhon, Irene E. Millett, Sandra Patton, Jeana Pulis, Mike Westmoreland, Arthur Wolinsky, and in particular, for their enormous contribution to orchestrating the community teams, Sara Fitzgerald and Keith Krueger of the Consortium for School Networking.

The committee also appreciates the hundreds of suggestions and constructive criticism provided by the reviewers of an early draft of this report. That input helped the committee to sharpen its message and strengthen its presentation.

Within the NRC, the lead unit on the project was the Computer Science and Telecommunications Board. However, the committee received a high level of support from members and staff of the Board on Children, Youth, and Families—and specifically calls attention to the critical roles played by Joah Ianotta, research assistant for BOCYF, in developing the summary of the first workshop on non-technical strategies, and by Gail Pritchard, previously staff officer for CSTB, and Mickelle Rodriguez, former senior project assistant, in organizing the site visits under very trying conditions.

Finally, grateful thanks are offered to Microsoft, IBM, and the Kellogg Foundation, whose financial support for this project was essential in rounding out the sponsorship of the Departments of Justice and Education. CSTB's sponsors enable but do not influence its projects.

#### A PERSONAL NOTE FROM THE CHAIR

The National Academies are well known for producing authoritative reports on controversial subjects. It is the hope of the committee that this report will be seen as comprehensive and authoritative, but I believe it is bound to disappoint a number of readers. It will disappoint those who expect a technological “quick fix” to the challenge of pornography on the Internet. It will disappoint those who suggest that an aggressive law enforcement effort is all that is necessary to shut down pornography purveyors of all types. It will disappoint parents, school officials, and librarians who seek surrogates to fulfill the responsibilities of training and supervision needed to truly protect children from inappropriate sexual materials on the Internet. And it will disappoint free speech absolutists who maintain that children have an unrestricted right to access whatever materials they choose to read or view in today's society.

Many of the members of this committee, including its chair, brought to our task somewhat simplistic views of the challenges implicit in our charge. My own views were shaped by a career in law enforcement during which time I learned that the issue of children and pornography is highly political and emotionally volatile. As a parent and a grandparent, I also feel that I have a personal stake in this issue.

I think it is fair to say that all committee members recognize that we finish our task enriched by the welter of material developed for our use and by the exchanges that took place among us. Most of us are somewhat chastened, I suspect, by adherence to our earlier views. For, in truth, as

our report spells out in great detail, there are no easy answers to the questions posed to our society by the proliferation of sexually explicit materials and their ready availability to children, particularly through the modern miracle we know as the Internet.

Today our society is awash in graphic, sexually explicit materials that are widely available in nearly every medium of communication—print, audio, and video—and in nearly every imaginable setting from home and school to overnight lodging. Much of the material with which this report is concerned was clearly violative of the obscenity laws a decade or so ago, but seldom are prosecutions brought in this 21st century.

The ubiquitous nature of the Internet poses special challenges for those concerned with this phenomenon. According to the U.S. Census, two-thirds of U.S. school-age children had home access to a personal computer in 2000.<sup>6</sup> And, most of these computers provide access to the Internet. These figures are even higher when school-provided access is added, and 90 percent of our children have Internet access in either homes or school.

The rapid growth in the availability of Internet images during the last decade has posed two specific problems in the conduct of this study. First is the private nature of Internet usage. Parental and teacher or librarian supervision is not nearly as easy when children seek or are inadvertently exposed to sexually explicit materials on the Internet as when such images are available in books or on the family television set. “Policing” by responsible adults is much more difficult when the Internet is involved.

Moreover, the fact that the Internet is a worldwide method of communication creates two special problems for law enforcement—even when the subject matter is what has been traditionally outlawed as obscene. U.S. Supreme Court decisions defining what is “obscene” depend, among other things, on the development of “community standards” against which the offending materials may be measured. What is the “community” for a medium that is worldwide in its reach? In addition, as the report notes, much of the pornography available on the Internet in the United States has its origins outside our borders and beyond the reach of law enforcement officials here. These are truly vexing challenges to even the most capable of modern criminal investigators and prosecutors.

The breadth of background and experience of the members of this committee was a significant advantage in pursuing our charge. Likewise, the process undertaken by the committee was designed to seek out and wrestle with the many issues implicit in that charge. We sought to order

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<sup>6</sup>See U.S. Census Press Release. 2001. “9-in-10 School-Age Children Have Computer Access; Internet Use Pervasive, Census Bureau Reports.” September 6. Available online at <<http://www.census.gov/Press-Release/www/2001/cb01-147.html>>.

our inquiry in a way that ensured that we heard from all sides and representatives of every interested point of view. Our field trips took us to communities across the country so that we might learn firsthand the views of parents, teachers, children, community leaders, and law enforcement officials. We also sought out experts in child development and child psychology, those intimately familiar with the technology of the Internet, and representatives of the adult entertainment industry themselves. I am satisfied that no potential sources of information or opinion were neglected, even if certainty on many points remained elusive.

In the final analysis, I believe that this report advances our understanding of the problems of children's access to inappropriate sexual materials on the Internet. But much work remains to be done. As noted, it is essential that unresolved legal issues be put to rest. An observation to the effect that "we know obscenity when we see it" will no longer suffice. We live under the rule of law, and prosecutors and courts must attempt to resolve these problems, however difficult that may be.

In addition, it is by no means clear that enough research has been carried out in this important area. Social science research into the effects of children viewing sexually explicit materials has not been carried out because of ethical considerations (although one must wonder if such reluctance doesn't speak to the reality of the harm itself). The computer industry has produced some of the largest personal fortunes in American history. Yet it has been curiously reluctant to commit its massive resources to leading-edge research and development efforts in this area.

Although, as the report emphasizes, responsibility for meeting this challenge truly begins at home, we must exert ourselves as a society to provide every possible support mechanism to parents concerned about this threat to their children's well-being. No concerned parent, however responsible and determined, should be left to his or her own devices in dealing with such a truly global challenge.

It may be that some members of the committee itself complete their assignment somewhat disappointed in our accomplishments. But, in life, the important tasks are never easy ones. If this task is deemed to be important for the future of our society and our children, our comprehensive study of the multitude of issues involved in protecting children from pornography on the Internet may prove to be a building block for future efforts that can provide workable answers to the difficult questions inherent in such a study.

If this study has succeeded even in part in its undertaking, credit is due to the remarkable and talented men and women who contributed so much of their valuable time, thought, and effort to this unique and daunting task. They set themselves to this difficult task in the best traditions of searching inquiry which have always characterized this great nation.

Special thanks are due to Dr. Herbert Lin, whose tireless efforts kept us on track and whose skills at managing a sometimes fractious group were admirable indeed.

Dick Thornburgh, *Chair*  
Committee to Study Tools and Strategies for Protecting Kids from Pornography and Their Applicability to Other Inappropriate Internet Content

April 2002

## Acknowledgment of Reviewers

This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We wish to thank the following individuals for their review of this report:

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Gio Wiederhold, Stanford University, and  
Nancy Willard, University of Oregon.

Although the reviewers listed above provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations, nor did they see the final draft of the report before its release. The review of this report was overseen by Lyle Jones, University of North Carolina, and Eugene Volokh, UCLA Law School. Appointed by the National Research Council, they were responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authoring committee and the institution.

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