

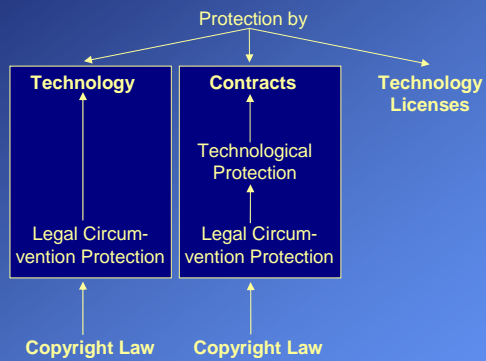
The Present and Future of Digital Rights Management

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1. The law on anti-circumvention is a mess
2. The law on interoperability is a mess
3. Value-centered technology design
4. Emerging problems
5. Conclusion

1. Anti-circumvention
2. Interoperability
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1. Anti-circumvention
2. Interoperability
3. Value-centered Design
4. Emerging Problems
5. Conclusion

- Anti-circumvention provisions concerning “technological measures” outlawing
 - Actual circumvention
 - Manufacturing & distribution of devices
 - International level: WCT, WPPT (1996)
 - U.S.: § 1201 DMCA (1998), AHRA (1992), free trade agreements with Singapore, Australia etc. (since 2003)
 - Europe: Art. 6 Copyright Directive (2001), Art. 4 Conditional Access Directive (1998), Art. 7 (1) (c) Software Directive (1991)

1. Anti-circumvention 2. Interoperability 3. Value-centered Design
4. Emerging Problems 5. Conclusion

- Anti-circumvention provisions concerning “rights management information” outlawing
 - Alteration & deletion of correct metadata
 - Rarely: provision of false metadata
 - Never: manufacturing & distribution of devices
 - International level: WCT, WPPT
 - U.S.: § 1202 DMCA, AHRA
 - Europe: Art. 7 Copyright Directive (2001)

1. Anti-circumvention 2. Interoperability 3. Value-centered Design
4. Emerging Problems 5. Conclusion

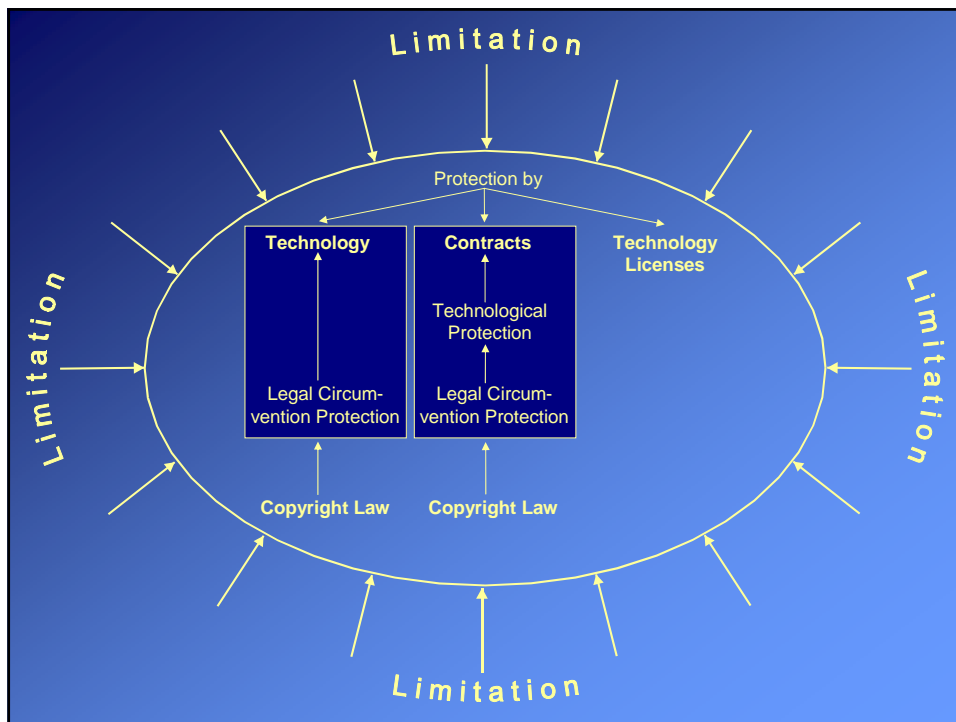
The image displays two side-by-side screenshots of the Adobe Digital Editions interface, illustrating digital rights management (DRM) restrictions for two different books.

Left Screenshot: "THE FUTURE OF IDEAS"
The book cover is black with yellow text. The subtitle is "The Fate of the Commons in a Connected World". Below the cover, a "Berechtigungen" (Permissions) window is open, listing the following restrictions:

- Kopieren:** Sie dürfen keine Textstellen in die Zwischenablage kopieren.
- Drucken:** Dieses Buch darf nicht gedruckt werden.
- Leihen:** Dieses Buch darf nicht an eine andere Person weiterverleihen werden.
- Weitergeben:** Dieses Buch darf nicht an eine andere Person weitergegeben werden.
- Vorlesen:** Die Schriftfläche "Vorlesen" kann nicht verwendet werden, um das Buch vorlesen zu lassen.

Right Screenshot: "A Journey to the Center of the Earth"
The book cover features a green and white image of a cave interior. Below the cover, a "Permissions on 'A Journey to the Center of the Earth'" window is open, listing the following restrictions:

- Copy:** You are permitted to copy 10 text selections every 10 days. You have copied 0 text selections over the last 10 days.
- Print:** You are permitted to print 10 pages every 10 days. You have printed 0 pages over the last 10 days.
- Lend:** This book can be lent.
- Give:** This book can be given.
- Read Aloud:** This book can be read aloud.



1. Anti-circumvention
2. Interoperability
3. Value-centered Design
4. Emerging Problems
5. Conclusion

- Regulatory options to reconcile DRM with © limitations:
 - Direct influence on the technological design
 - Advantage: direct regulation
 - Disadvantage: Fred von Lohmann's "judge on a chip"

1. Anti-circumvention 2. Interoperability 3. Value-centered Design
4. Emerging Problems 5. Conclusion

- Regulatory options to reconcile DRM with © limitations:
 - Direct influence on the technological design
 - Indirect regulation / “right to hack”
 - Advantage: proximity to copyright limitations
 - Disadvantage: some preparatory activities have to be allowed, dual use problem

1. Anti-circumvention 2. Interoperability 3. Value-centered Design
4. Emerging Problems 5. Conclusion

- Regulatory options to reconcile DRM with © limitations:
 - Direct influence on the technological design
 - Indirect regulation / “right to hack”
 - Indirect regulation / “key escrow system”
 - Advantage: preparatory activities can remain forbidden
 - Disadvantage: centralization, chilling effects

1. Anti-circumvention 2. Interoperability 3. Value-centered Design
4. Emerging Problems 5. Conclusion

- Regulatory options to reconcile DRM with © limitations:
 - Direct influence on the technological design
 - Indirect regulation / “right to hack”
 - Indirect regulation / “key escrow system”
 - Removing market failures
 - Advantage: curing the underlying problem
 - Disadvantage: does it work?
 - Examples: § 95d German Copyright Act, Art. 166b Slovenian Copyright Act

1. Anti-circumvention 2. Interoperability 3. Value-centered Design
4. Emerging Problems 5. Conclusion

- Regulatory options to reconcile DRM with © limitations:
 - Direct influence on the technological design
 - **Not: Indirect regulation / “right to hack”**
 - Indirect regulation / “key escrow system”
 - Removing market failures
- Limitations of Art. 6 (4) Copyright Directive
 - Priority of private ordering
 - Does not apply to all copyright limitations
 - Depends on the business model

Country \ Feature	No Action	Influencing technology	ADR	Administration	Court	Right to hack (delay)
Austria	X					
Belgium					I, G	
Denmark				I		X
Germany					I, G	
Greece			I		I	
Ireland					I	
Italy		X	I		I	
Latvia			I		I	
Lithuania			I		I	
Luxemburg					I, G	
Malta					I	
Netherlands				X		
Norway (EEA)				X		X
Slovak Republic	X					
Slovenia			I			
United Kingdom				I, G		

I = individual
G = interest group

1. Anti-circumvention **2. Interoperability** 3. Value-centered Design
4. Emerging Problems 5. Conclusion

- Proprietary versus open DRM systems
- U.S.:
 - Apple iTunes v. RealNetworks
 - Microsoft consent decree
 - Microsoft Zune
 - Davidson & Associates (bnetd) v. Internet Gateways (8th Cir. 2005)

1. Anti-circumvention **2. Interoperability** 3. Value-centered Design
4. Emerging Problems 5. Conclusion

- Proprietary versus open DRM systems
- U.S.
- Europe:
 - Art. 6 Software Directive
 - What is a computer program?
 - What about code obfuscation?
 - Microsoft proceedings

1. Anti-circumvention **2. Interoperability** 3. Value-centered Design
4. Emerging Problems 5. Conclusion

- Proprietary versus open DRM systems
- U.S.
- Europe
- France: Copyright Act as of August 2006:
 - Regulatory authority
 - Will mediate interoperability requests
 - Has power to impose fines up to 5% of the global turnover
 - But: DRM providers can escape interoperability requests if
 - All copyright holders have agreed to the proprietary format
 - Security risks exist

1. Anti-circumvention 2. Interoperability **3. Value-centered Design**
4. Emerging Problems 5. Conclusion

- Goals of value-centered technology design
 1. Identify real policy problems.
 2. Don't expect the law to solve all problems convincingly that technology creates!
 3. At least: think about technological solutions.

1. Anti-circumvention 2. Interoperability **3. Value-centered Design**
4. Emerging Problems 5. Conclusion

- Examples
 - Symmetric rights expression languages (RELs) and rights messaging protocols (RMPs)
 - If copyright limitations and other legitimate interests of information users cannot be expressed in an REL/RMP, such interests simply do not exist within the system.

1. Anti-circumvention 2. Interoperability **3. Value-centered Design**
4. Emerging Problems 5. Conclusion

- **Examples**

- Symmetric rights expression languages (RELs) and rights messaging protocols (RMPs)
- Authorized domain architectures
 - Access any content from anywhere by any device

1. Anti-circumvention 2. Interoperability **3. Value-centered Design**
4. Emerging Problems 5. Conclusion

- **Examples**

- Symmetric rights expression languages (RELs) and rights messaging protocols (RMPs)
- Authorized domain architectures
- **Privacy-preserving DRM**
 - Integrate privacy-enhancing technologies (PETs) into DRM systems

1. Anti-circumvention 2. Interoperability **3. Value-centered Design**
4. Emerging Problems 5. Conclusion

- **Examples**

- Symmetric rights expression languages (RELs) and rights messaging protocols (RMPs)
- Authorized domain architectures
- Privacy-preserving DRM
- DRM interoperability
 - Example: DReAM and OpenMediaCommons by Sun Microsystems

1. Anti-circumvention 2. Interoperability 3. Value-centered Design
4. Emerging Problems 5. Conclusion

- **DRM and the GPLv3**

- No protection of GPL'd software by DRM systems
 - "No permission is given for modes of conveying that deny users that run covered works the full exercise of the legal rights granted by this License."
 - Duty to disclose keys
 - "[The duty to convey the source code of GPL'd software] also includes any encryption or authorization keys necessary to install and/or execute modified versions from source code [...] [t]he fact that a key is generated based on the object code of the work or is present in hardware that limits its use does not alter the requirement to include it in the Corresponding Source."
 - What about legitimate security concerns (e.g. making sure that only a particular version of a software program can be executed on a particular hardware?)
- Hard to distinguish between copyright, security, and competition

1. Anti-circumvention 2. Interoperability 3. Value-centered Design
4. Emerging Problems 5. Conclusion

- DRM and the GPLv3
- DRM and standardization
 - Problem: “The nice thing about standards is that there are so many to choose from.” (Andrew Tanenbaum)
 - Solution: Patent pool, e.g. MPEG LA for OMA (2005)?

1. Anti-circumvention 2. Interoperability 3. Value-centered Design
4. Emerging Problems 5. Conclusion

- DRM and the GPLv3
- DRM and standardization
- DRM and levies
 - Created by governments: EU discussions
 - Initiative postponed or failed?
 - Created by industries: Microsoft Zune & Universal

1. Anti-circumvention 2. Interoperability 3. Value-centered Design
4. Emerging Problems 5. Conclusion

- DRM and the GPLv3
- DRM and standardization
- DRM and levies
- Mandatory use of DRM systems
 - “No-mandate” clauses both in the DMCA and the European Copyright Directive, but
 - U.S.:
 - DAT: 17 U.S.C. § 1002 (a)
 - Analog consumer video equipment: 17 U.S.C. § 1201 (k)
 - Broadcast flag failed
 - Europe:
 - Pay TV: common scrambling algorithm (Universal Service Directive), but for competition policy reasons
 - DVB?

1. Anti-circumvention 2. Interoperability 3. Value-centered Design
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- The law surrounding DRM is a mess
- Value-centered technology design: comparing technological and legal approaches
- Future DRM debates will not focus on copyright-related, but on competition-related problems

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