



Elementi di modellazione e programmazione di contenuti digitali

**Corso di Laurea Magistrale in Metodologie
informatiche per le discipline umanistiche**

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Argomenti del Corso

- | Contenuti Digitali
- | Commercio Elettronico dei contenuti
- | Elaborazione di Contenuti Digitali
- | Modelli e Solutioni di protezione per contenuti
- | Advertising e business in Internet
- | Sistemi Cooperativi
- | Content Management Systems
- | Linguaggi di cui si farà uso:
 - ♣ HTML, XML, ...
 - ♣ PHP
 - ♣ SQL





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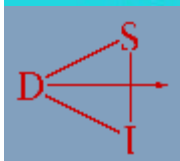
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Ricevimento

- ♣ Presso l'ufficio del docente, Via S. Marta
- ♣ Tutti i Martedì dalle ore 11:00 alle 13:00

Modalita' per il superamento dell'Esame

- ♣ Completare con successo un elaborato concordato con il docente sulle tematiche del corso





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Contenuti Digitali





Contenuto o Risorsa

| Si intende una informazione o un insieme di informazioni non necessariamente legate all'ambito informatico:

- ♣ Informazioni volatili
- ♣ Dati sensibili
- ♣ Documenti cartacei
- ♣ Fotografie
- ♣ Audio/Video su vecchi o moderni supporti
- ♣ etc.





Contenuto digitale

Per Contenuto digitale si intende una qualsiasi risorsa rappresentata in forma numerica.

Tipi di contenuti digitali:

- ♣ Semplici: Audio, Video, Immagini, Testi, etc.
- ♣ Aggregati: Oggetti multimediali
- ♣ Statici
- ♣ Dinamici: è fondamentale avere a disposizione soluzioni di memorizzazione dinamiche che permettono di accesso, scaricare, modificare, condividere e proteggere le proprie informazioni digitali ovunque e in un qualsiasi momento





Aspetti legati ai contenuti digitali -1-

| Presenza di Formati differenti da utilizzare in base alle esigenze:

→ Audio: wav, Mp3, mp4, wmp, MIDI, ...

→ Video: avi, mov, flv ...

→ Testo: doc, txt, odt, pdf, ...

→ Immagini: gif, jpg, png,

→ ...

| Possibilità di associare metadati al contenuto





Aspetti legati ai contenuti digitali -2-

- | Protezione dei contenuti
- | Archiviazione (DB)
- | Ricerca
- | Riusabilità
- | Aggregazione di contenuti
- | Connessione tra contenuti
- | Tracciabilità
- | ...





Introduction to E-Commerce and Content Distribution





Introduction to E-Commerce and Content Distribution



- | Physical and digital good
- | E-commerce technologies and problems
- | Transaction and business Models

- | Terminology and Value Chain
- | *Digital Rights Management*
- | *Content Modeling and Packaging*
- | *Licensing and content distribution*
- | *Example of Microsoft Windows Media*
- | *Example of Apple I-Tune*
- | *Example of AXMEDIS solution*
- | *Secure P2P content Distribution*
- | *Distribution mediate via Kiosks*
- | *Satellite broadcasting*





E-Commerce Introduction

I Digital promotion and sale of traditional (not digital) objects as *physical goods*

- ♣ Off-line delivering of non digital goods

- ♣ for example: AMAZON, eBay

I Digital promotion and sale of *digital goods*

- ♣ Off-line delivering, for example:

- For example: AMAZON, ebay, ...

- ♣ On-line delivering, for example:

- i-Tune, Sky, Premium, La7, TISCALI, etc.

- And also AMAZON for certain products





Physical vs Digital Good



- | *The usage of digital world/technology for the commerce of **physical** good “is a subproblem of” The usage of digital world/technology for the commerce of **digital** good*

- | **They share** the:
 - ♣ Marketing models and segments
 - ♣ Business model, transaction and payment
- | **E-Commerce of digital good** has in addition problems of:
 - ♣ Digital distribution
 - ♣ IPR (Intellectual Property Right) control/supervision, such as DRM (Digital Rights Management) or Copy Protection
- | **E-Commerce of digital good** has in addition problems of:
 - ♣ Physical delivering, preservation, storage, etc.





E-Commerce Services technologies

- | **On the back of e-Commerce services there exists a large number of technologies.**

- | **Architectures and solutions for:**
 - A. Content/good distribution**
 - B. Content/good production and management**
 - C. Content/good Protection and Security**
 - D. Content/good Modeling and Processing**





E-Commerce Services technologies

Architectures and solutions for

♣ A) Content distribution

- Streaming 1:1: VOD (video on demand), MPEG-2 TS,
- Downloading, progressive download, VOD, VOIP (Voice on IP), ...
- Broadcasting: DVB-T, DVB-S, DVB-H, DVB-SH,
- Providing services:
- Paying portals:

♣ B) Content production and management

- Content Processing:
 - adaptation, production, formatting, packing, etc.
- Scalability: GRID for content processing:
 - search, production on demand, massive production and transcoding





E-Commerce Services technologies



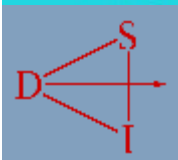
C) Content Protection and Security, aspects:

- ♣ CP: Copy Protection
- ♣ CAS: Conditional Access Systems
- ♣ DRM: Digital Rights Management
- ♣ Based on some technologies

- Certification of: content, users, devices, etc.
- Authentication of: users, actors, devices, etc.
- Signature of: content, ..
- Identification of: content, users, devices, etc.
- Watermark and fingerprint.....
- Coding and Encryption.....

Acronyms and Definitions for aspects and technologies

- IPR: Intellectually Property Right
- CA: Certification Authority, chain of certificates
- TPM: Technological Protection Model
- FTA: Fault Tolerance Architectures
- Etc.





D) Content Modeling and Processing



The content model impacts on:

- ♣ **Format: XML, binary**
- ♣ **Content gathering and ingestion**
- ♣ **Production and production-process definition**
 - Workflow Management systems
 - Cooperative work
- ♣ **CMS, DMS, Content/Media Management Systems**
 - Database management systems
 - query support, distributed queries, etc.
- ♣ **Content description for**
 - Search, classification/indexing, retrieval
- ♣ **Content protection for enforcing respect of**
 - IPR: CAS, DRM,
- ♣ **programme/guide production**
 - EPG (Electronic Program Guide), GuidePlus, ShowView, TVAnytime, etc.





E-Commerce Services Aspects



| Business Model (who is going to pay, which is the flow of money)

- ♣ how/who/when to give money for some goods/service ?
- ♣ How is created the revenue stream ?
- ♣ Subscription, Pay per play, etc..

| Transaction Models

- ♣ technical aspects of business transaction
 - ➔ Security: certification, smartcards, etc.
 - ➔ Mission Critical Applications

| Subproblems: payment solution

- ♣ Accounting: for example in phone bill
- ♣ Banking: for example on your bank account
- ♣ Micropayments: for direct payment, small amounts
- ♣ Model: prepaid or post paid
- ♣ Cards: Prepaid cards, Credit Card, temp cards, etc.





Examples of Business Model



	On Line delivering	Off Line delivering
On Line Payment	Digital good	Any good
Off Line Payment	Digital good	Any good

	On Line usage	Off Line usage
Digital good	Yes	Yes
Physical good	No sense	Yes





Business Models

I Are business models

- ♣ Monthly subscription to get all videos of channel, for example SKY
- ♣ Generic subscription to have in your monthly bill a price for each item you buy, for example Pay per Play
- ♣ Prepaid card: to pay in advance a certain credit that is consumed every time you buy an item, for example the prepaid cards of Mediaset on DVB-T/DTT
- ♣ Etc.





Classification of Transaction Models



- | **B2B: Business to Business**
 - ♣ Among digital good: producer, publishers, integrator, resellers, distributors, etc.
 - ♣ Each of them add a value and thus charge to final price of the digital good, ...
- | **B2C: Business to Consumer**
 - ♣ From distributors to consumers
 - ♣ The final part of the value chain
- | **C2C: Consumer to Consumer**
 - ♣ File and good sharing
 - ♣ UGC (User Generated Content) sharing
 - ♣ Recently IPR management
- | **B2B2C**
 - ♣ Integrated B2B to B2C





The business Transaction



What is a transaction?

- ♣ In the business world, is an action that change the state of an enterprise
- ♣ In the computer world, is a collection of actions with properties of
 - Atomicity,
 - Consistency,
 - Isolation,
 - Durability
- ♣ The so called ACID





Transaction: ACID properties



| Atomicity:

- ♣ do all-or-nothing

| Consistency:

- ♣ transaction must leave the system in a correct state or it must abort without any consequence

| Isolation:

- ♣ Transaction behavior is not effected by other transactions that execute concurrently, for example the buying could depend on the payment, etc.

| Durability, persistence:

- ♣ transaction's effects are permanent after it commits. They survive system failures





E-Commerce Services Aspects



Scalability:

- ♣ From few to millions of transactions per hours
- ♣ From few to millions of subscribed users
- ♣ From few to millions of different content items

Availability and Accessibility:

- ♣ Discovery on internet
- ♣ Accessibility of the service, broadcast/cellular coverage





Major User Requirements



I TRU: True/Traditional Right Usage

- ♣ Collection of requirements about the Traditional User Needs and usages of content in acquiring, sharing, redistributing traditional content also physical content: vinyl, tapes, etc.
- ♣ With the hope of having the same features and usage of the physical good:
 - ➔ Access, acquisition, copy, lend, share, save, resale, protect IPR, destroy, etc.

I Main requirements:

- ♣ Acquisition of physical good
 - ➔ Simple and accessible for all
- ♣ Acquisition of digital good
 - ➔ May be Immediate, take now
 - Try and buy: get now, pay in 20 day when enabling the product
 - Buy and use:





Physical vs digital content

| **More features** in the digital than those usually in the physical world, For example:

- ♣ buy one and use more: home, car, i-pod, PDA, phone, CD, etc.
- ♣ More: Share, save, copy, backup, transcode, reuse, ...

| **Less features** in the digital world,

- ♣ Restrictions imposed by the CAS and DRM systems
- ♣ Less: lend, resale, destroy, etc.
- ♣ Users do not give a value to digital content on file
- ♣ Users do not are interested in destroy, files are not heavy





Requirements of E-Commerce Applications



- | High number of **clients/users** per applications (millions or more)
 - ♣ the server is on Internet, accessible to every user in the world
 - ♣ The users are connected via broadcast, cellular phones, etc.

- | **Content:** typically millions of items are sold from the same distribution site
- | **Client device** has to be suitable for using the digital content if any.
- | **Integration** with legacy applications and heterogeneous databases
 - ♣ probably the enterprise already has legacy applications or DBMS (for internal purpose or because it is already a Commerce Enterprise: catalog/client information, etc.)
 - ♣ with the evolution of the infrastructure, other software may be added to the server (Data Warehouse, OLAP, Data Mining)





Content distribution models



| **Download, P2P download, ...:**

- ♣ 1:N: one sender N receivers/users
- ♣ N copies, propagation of seeding/sources sites

| **Broadcast, Streaming:**

- ♣ 1:N: one sender N receivers/users
- ♣ N users that play the same content at the same time

| **VOD, progressive download, P2P streaming/ progressive:**

- ♣ 1:N: one sender N receivers/users, that play the same content a different time

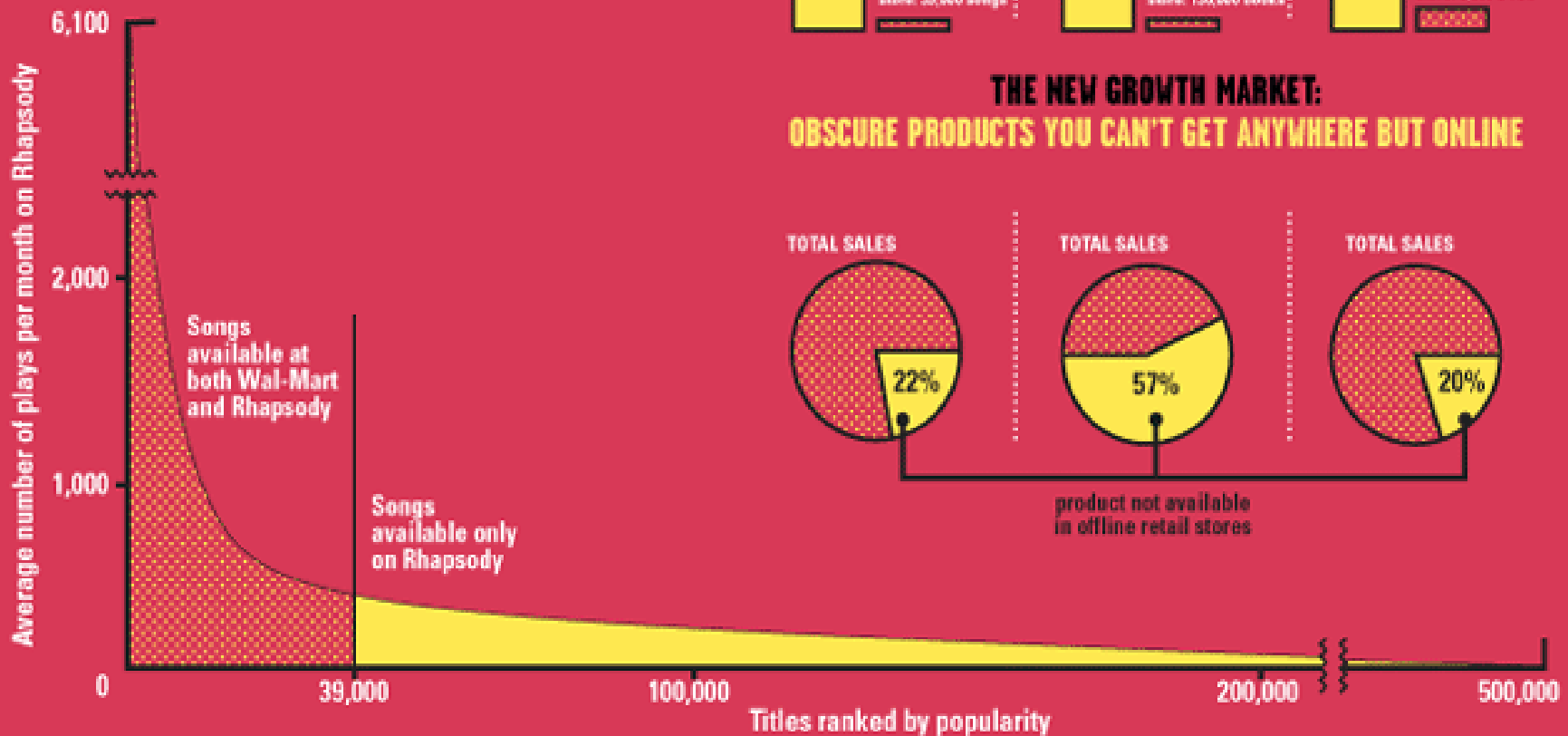


The Long Tail, paradigm



ANATOMY OF THE LONG TAIL

Online services carry far more inventory than traditional retailers. Rhapsody, for example, offers 19 times as many songs as Wal-Mart's stock of 39,000 tunes. The appetite for Rhapsody's more obscure tunes (charted below in yellow) makes up the so-called Long Tail. Meanwhile, even as consumers flock to mainstream books, music, and films (right), there is real demand for niche fare found only online.





The arrival of UGC

UGC: User Generated content

- ♣ Absent on commercial portal
- ♣ Dominant in others: YouTube, etc...
- ♣ Marginal in others,...

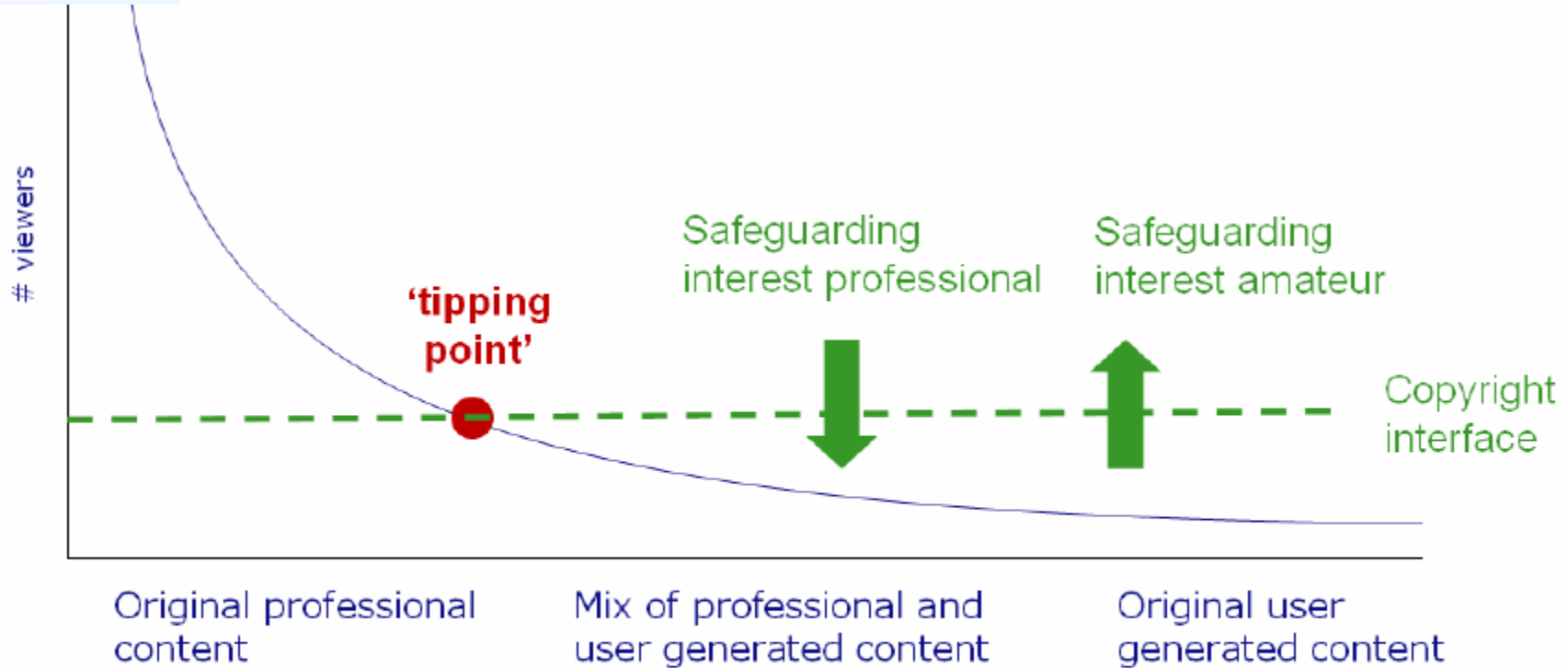
Influence on the Long Tail

- ♣ Competition of UGC with traditionally and professionally produced content.





Long tail analysis



Copyright interface between semi-private and semi-public sphere
Source: Limonard and Esmeijer 2007, p. 95





Long tail paradigm



Initial hypothesis

- ♣ 80% of transactions are developed with the 20% of products
- ♣ 20% of transactions are developed with the rest, 80%

The 80/20 ratio depends on:

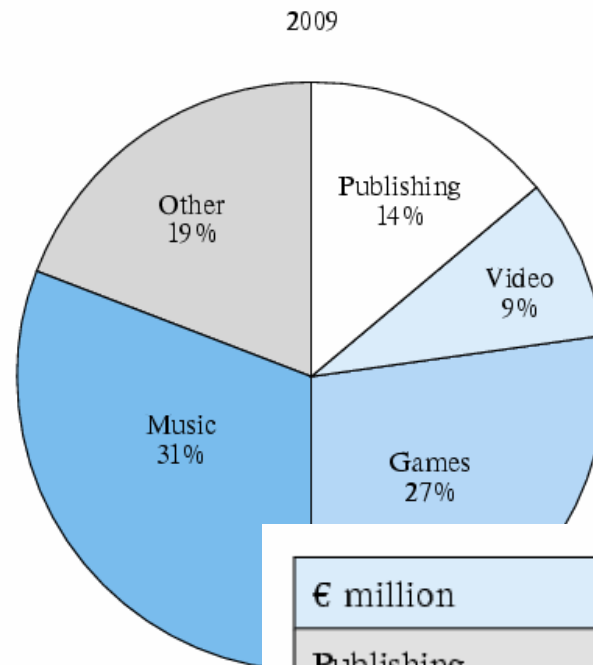
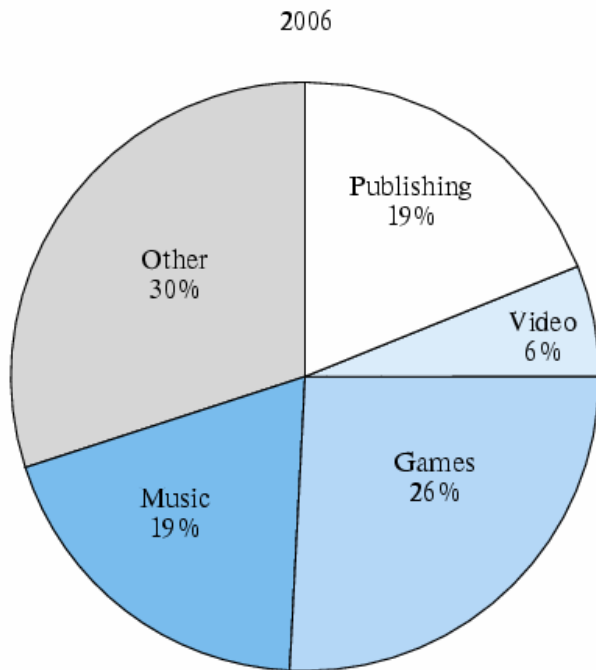
- ♣ Content marketing model
- ♣ Content nature and topic
- ♣ Stimulus and recommendations provided to the users
- ♣ User skill and evolution/renovation
- ♣ Etc.

Due to these facts, in most cases, the ration 80/20 is not anymore true, its trend in many case is towards the 60/40





Trend of Paid On Line Content



€ million	2006	2007	2008	2009
Publishing	268	326	370	403
Video	88	133	186	244
Games	368	485	610	762
Music	269	452	652	836
Other ⁷	448	487	518	540
Total content revenues	1,441	1,883	2,336	2,785

Source: JupiterResearch – European Paid Content and Services Forecast



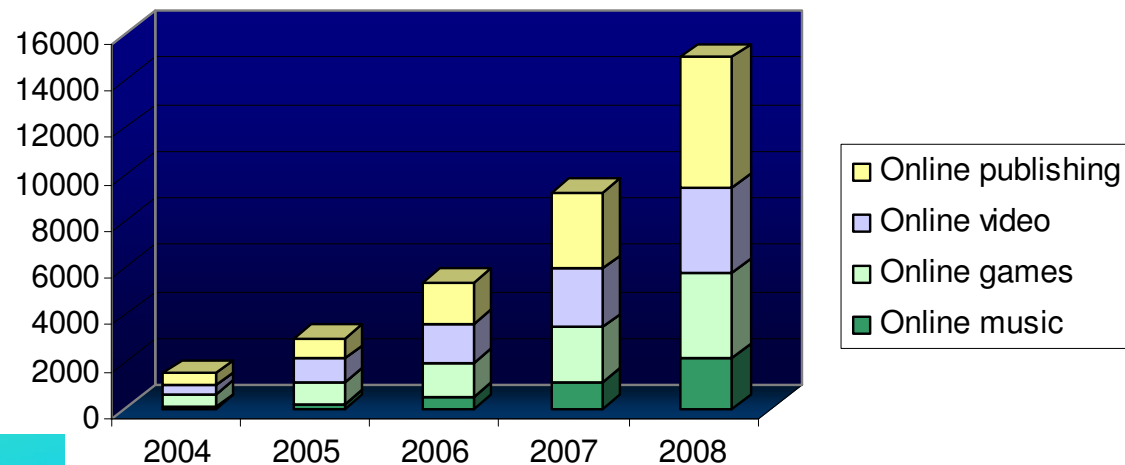


Exploitation: Online content revenues



- | Forecast of increasing revenues coming from online content
 - | Changes in user demand are forcing content owners, aggregators and distributors in making content available towards different distribution channels
-
- ♣ Need to reduce costs for authoring and re-authoring
 - ♣ Need for a single content format suitable for multiple platforms

Total online content revenue by type of content in Western Europe (Meuro)

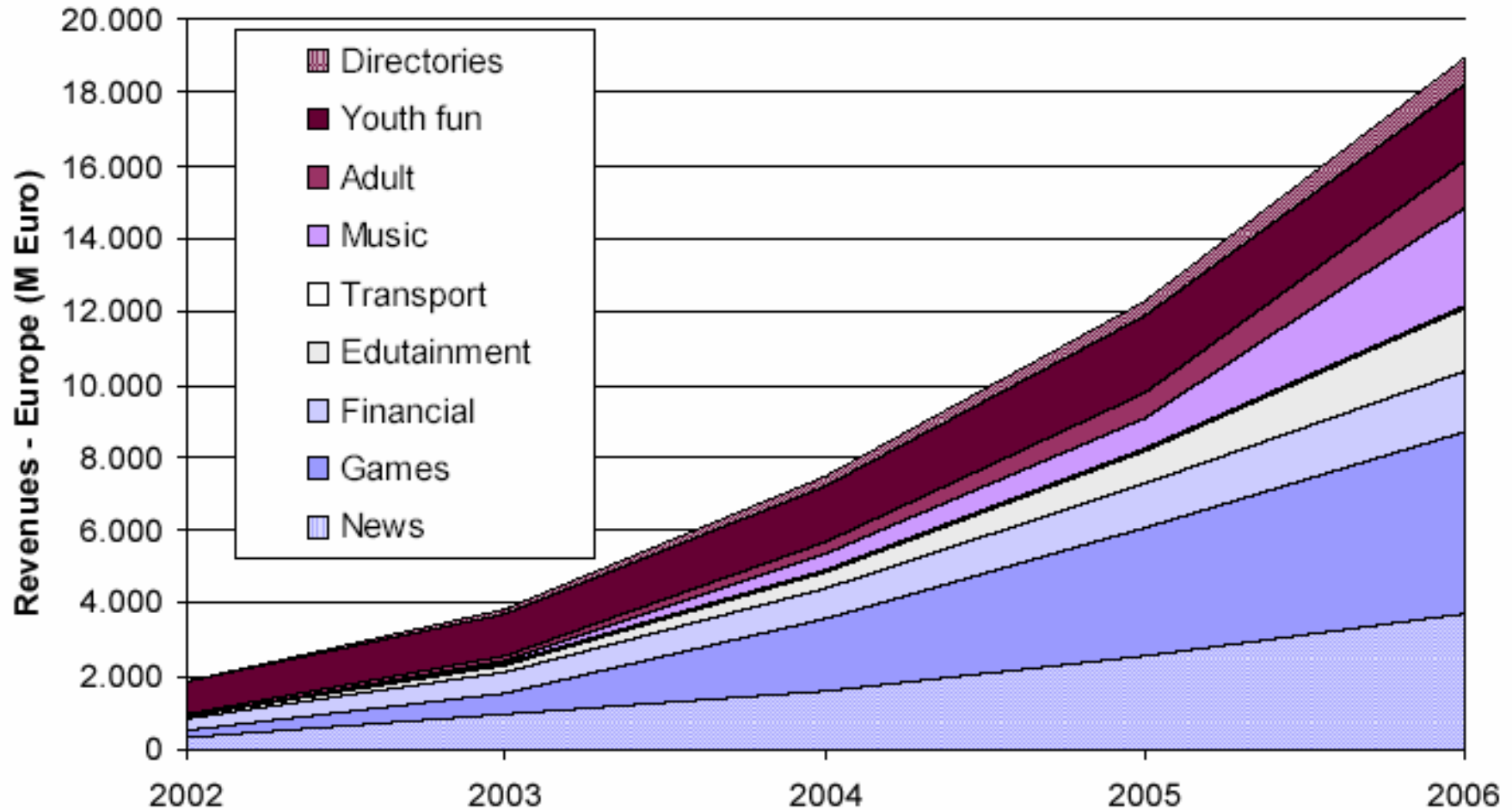


* Source EITO 2005



The digital market

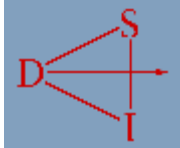
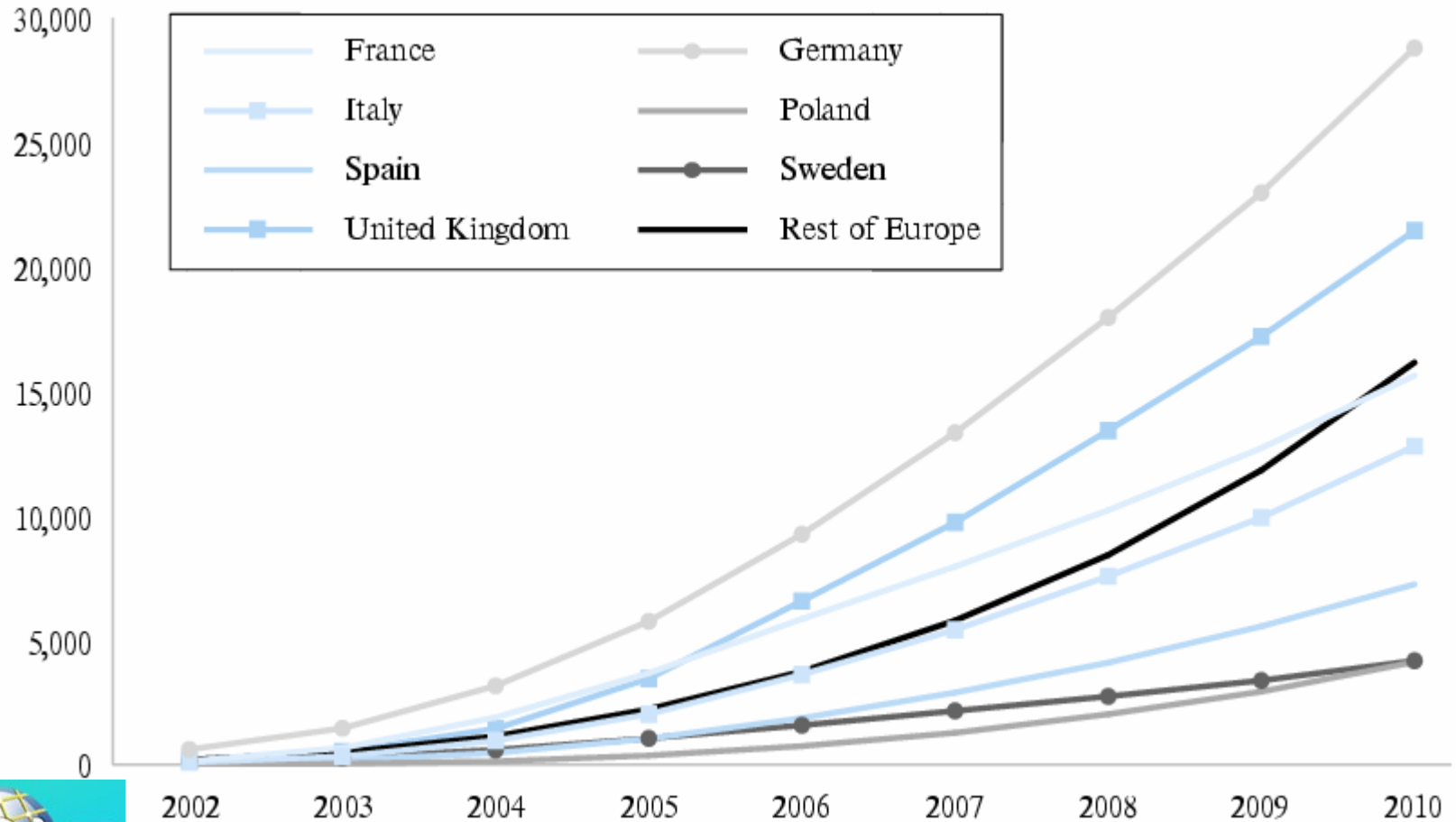
Total market revenues split between content-based applications



Source: Andersen



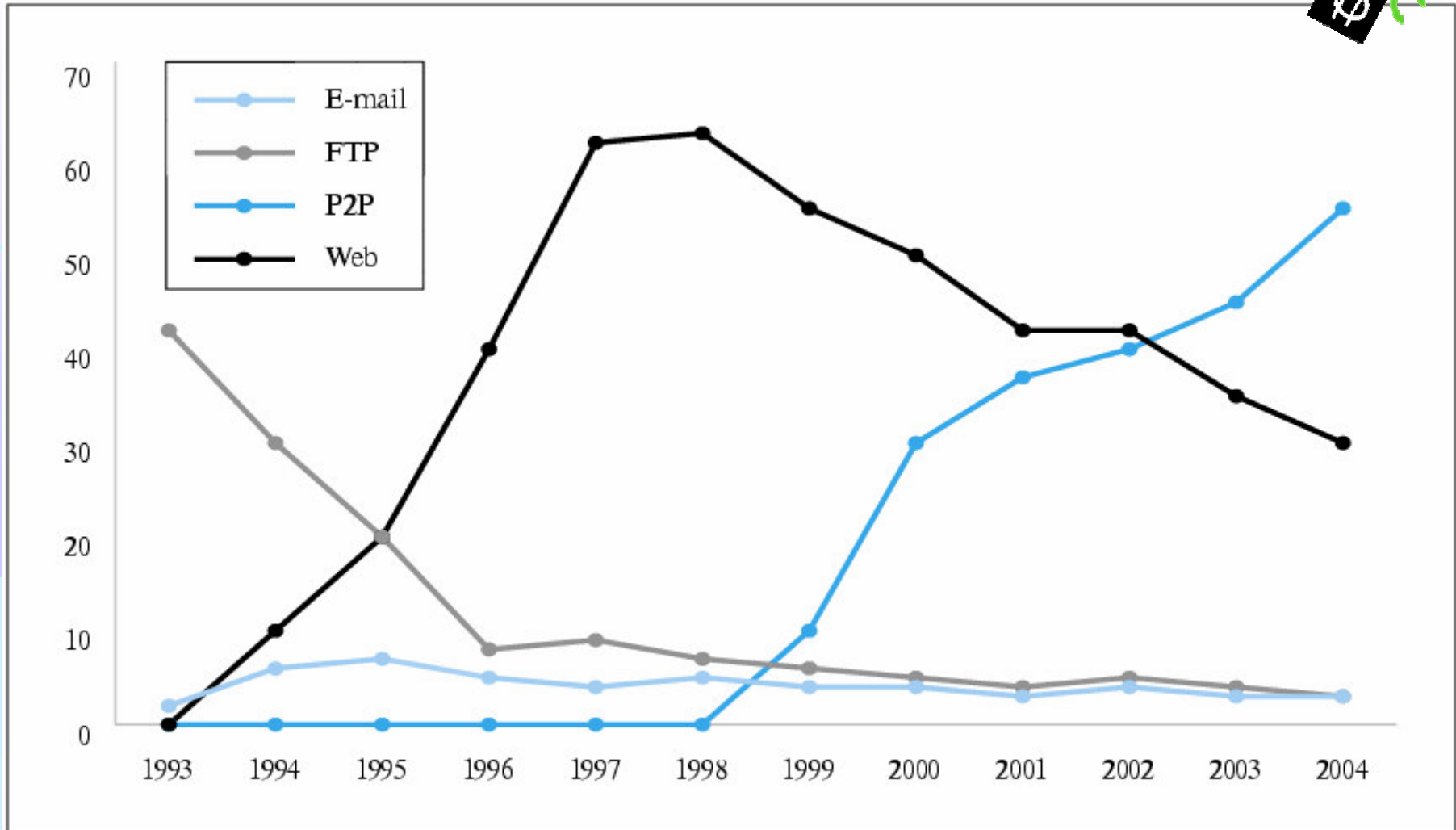
Grow AVG, Mill. Download files per year, EU 25, P2P



EITO 2007



Trend of tech. penetration on accessing digital content



Source: CacheLogic - P2P in 2005





Contingency issues



I Trend of the market for digital content:

- ♣ Audio and Video distribution growing
- ♣ Issues regarding the market loss for piracy (60-80%)
- ♣ Issues regarding the P2P as primary source of piracy
- ♣ High costs of content production and distribution
- ♣ long tail of content (the law of 80/20, 60/40)
- ♣ High business risks

I High demands on

- ♣ content interactivity
- ♣ content for mobile devices
- ♣ Cheap video content
- ♣ User Generated Content
- ♣ Enriched content, and content enrichment models/tools
- ♣ interoperability of content and devices
- ♣ tools for cultural valorization of content
- ♣ Collaborative solutions for their own content





Derived Contingency issues



| Critical issues of CAS and DRM solutions

- ♣ Difficulties in matching the TRU (True/Traditional Right Usage)
- ♣ Difficulties in satisfying legal and technical capabilities
- ♣ Lack of interoperability among channels, devices, content, etc.
- ♣ Lack of openness of the solutions
- ♣ Lack of commonly defined standards
 - Problems on the standards for no large and spread enough solutions
- ♣ Lack of flexibility in the business and transaction models
- ♣ Lack of solutions to cope with UGC and satisfying the IPR needs of final users producing the UGC
- ♣ Complexity of managing millions of users, using millions of content, with a high number of possible business models and modalities.
- ♣ Etc.

| Massive processing in content production and distribution, and in license processing and event tracking

| *These are a real challenge for many industries that are discovering the complexity of managing large digital content factories and distribution chains.*





User's Trends

- | Users are abandoning the traditional TV
- | TV Users are classified in:
 - ♣ Couch potatoes
 - ♣ Active users
 - ♣ Proactive users
- | Active Users are not only a large percentage of young users !
 - ♣ Many of aged users are interested in being more active with their TV set.





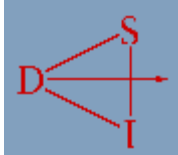
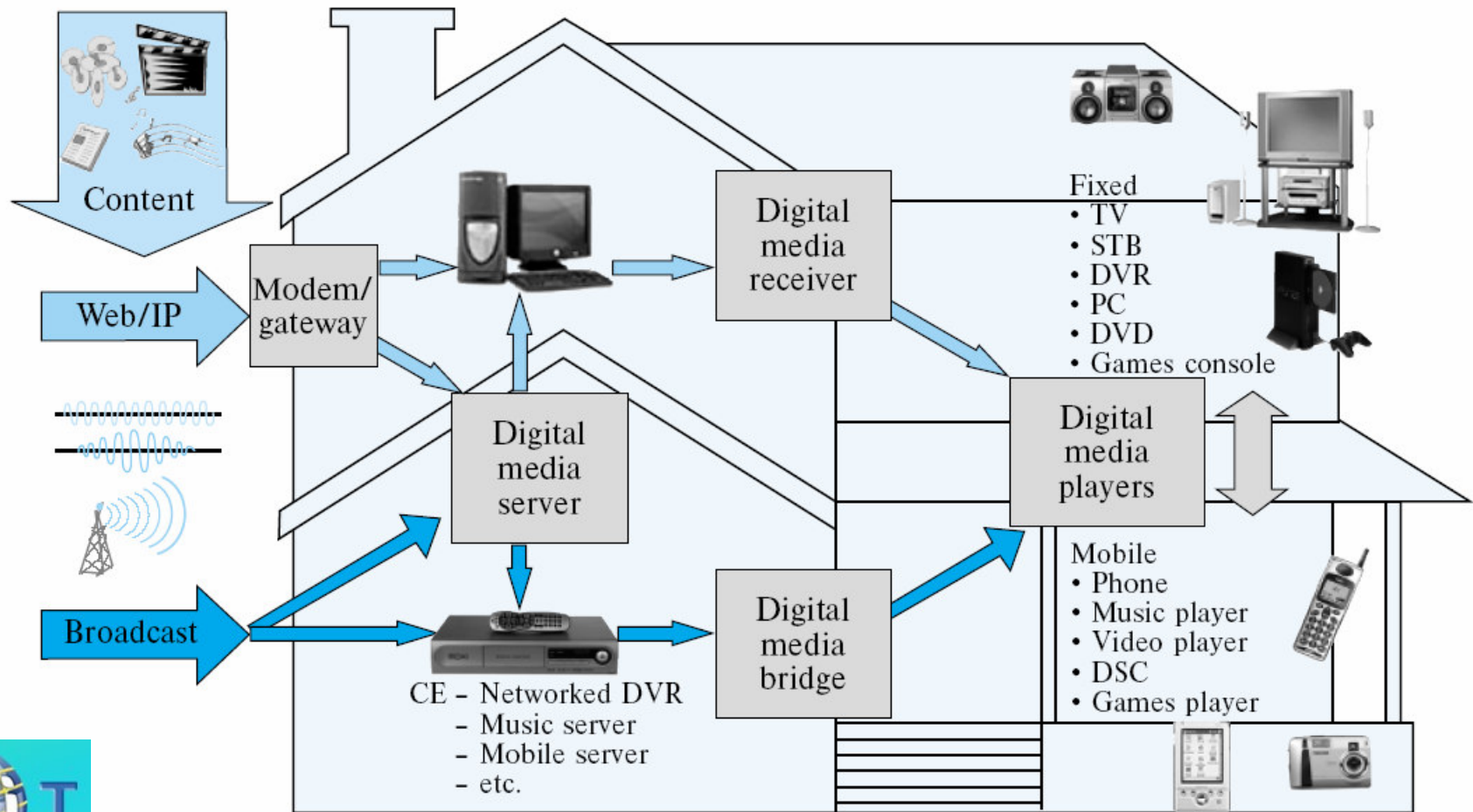
Today User's Trend

- ♣ more time on PC/games console
- ♣ more money and time on i-TV
 - ➔ Cultural programs
 - ➔ Thematic information
- ♣ more attracted by new content models and usages
- ♣ more attracted by new devices, mobile, natural interaction devices
 - ➔ touch: I-Phone HTC Touch,
 - ➔ gesture: Wii, HTC sensors, etc..
- ♣ interested in personal content publishing and sharing
 - ➔ YouTube, Video Google, etc.,
- ♣ interested in Personal TV, personal realities, social TV
- ♣ more interested in individuality and personal needs
- ♣ interested in interactive and interoperable content
- ♣ interested in home media centers and content management,
- ♣ Etc,





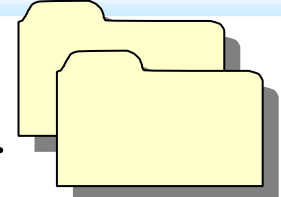
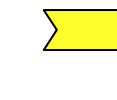
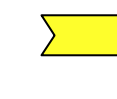
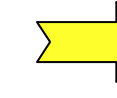
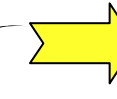
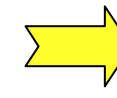
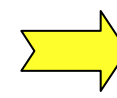
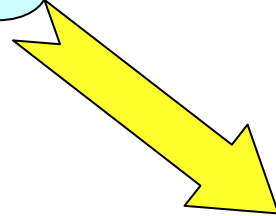
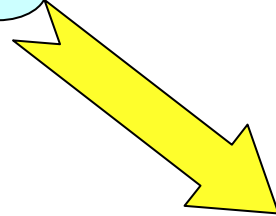
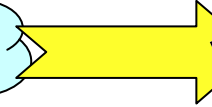
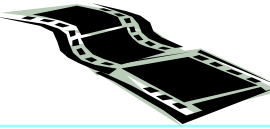
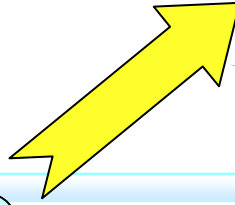
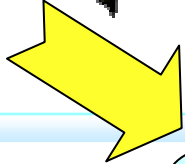
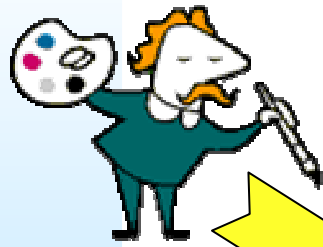
The Media Usage at home



Source EITO2005



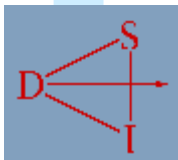
Terminology



- | The artist creates a Work
- | The work may be used to produce several manifestations

Manifestations

Resources





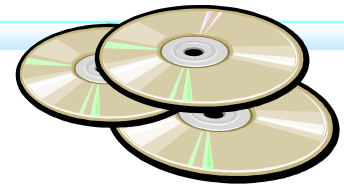
Not enough interactivity and interoperability

Cross Media Content examples are:

- ♣ Interactive training material
- ♣ documents with hyperlinks
- ♣ interactive content in which the user may navigate
- ♣ Interactive content in which the users can make changes, etc.

DVDs, WEB pages, eBooks, etc.

- ♣ mainly audio visual or textual
- ♣ allow the inclusions of Simple Games (only DVD)
- ♣ mainly for physical distribution (e.g., DVD)
- ♣ eBooks and WEB pages are only digital distribution
- ♣ low or absent interoperability among devices and distribution channels



Innovations

- ♣ more interactivity and interoperability among devices/players
 - ➔ Content moving among devices and player
 - ➔ The same content on difference devices: PC, Mobile, PDA, etc.
 - ➔ different media inside (cross media)
- ♣ flexibility in creating content packages
- ♣ ...

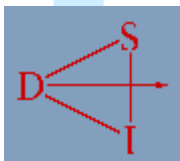




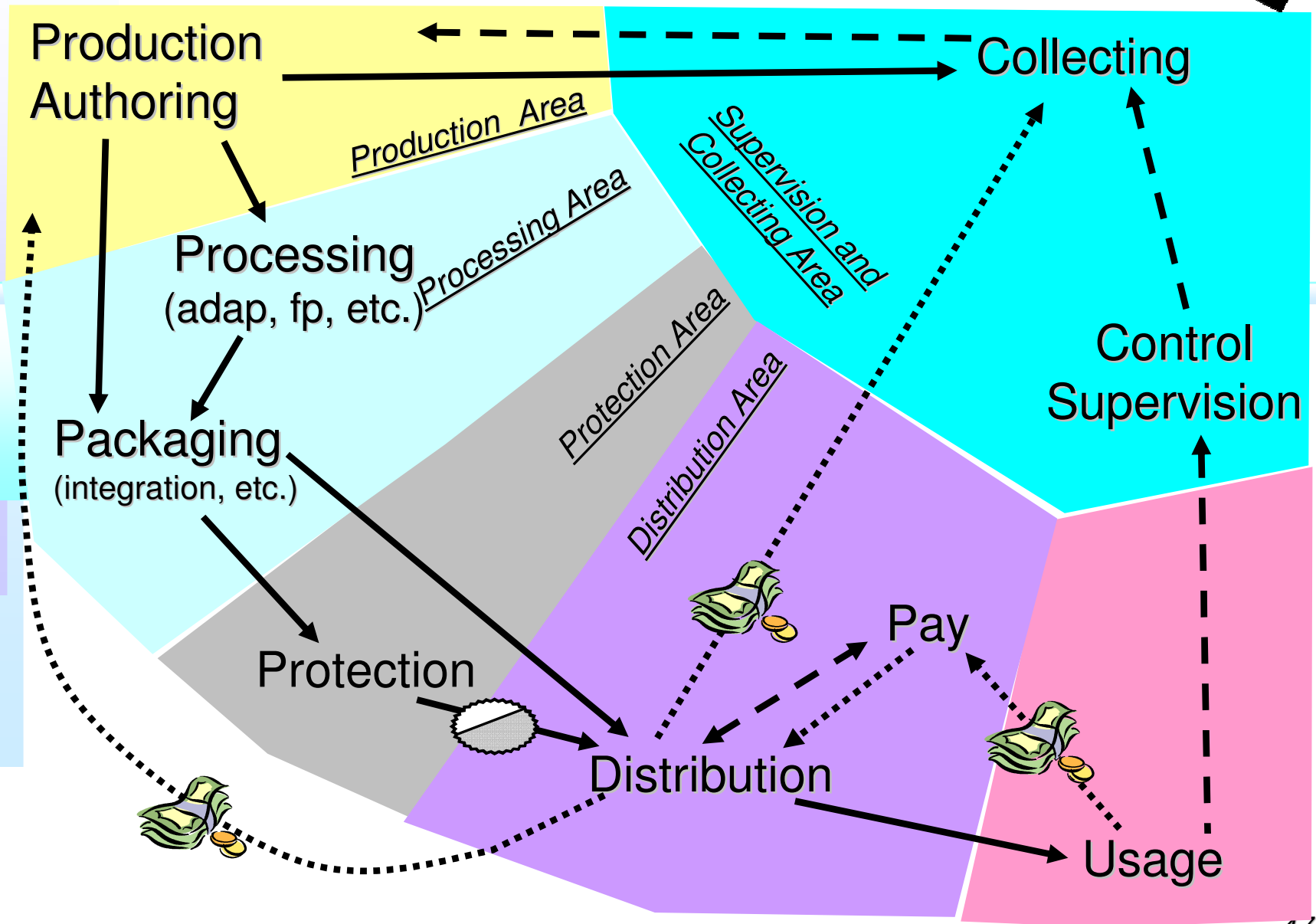
Some Actors of the value chain, “definitions”



- | **Right/Content Owners**, B2B, artists, etc.
 - ♣ who has the rights on the initial work, non digital
- | **Content Producers**, B2B, Publishers
 - ♣ Who is producing the manifestations of the work, define its rights, may produce the digital resources or not, etc.
- | **Content Integrators**, aggregators, B2B
 - ♣ Who is Integration/aggregation: resources + metadata ++ , added value, etc., may be add other rights, etc.
- | **Content Distributors**, B2B, B2C
 - ♣ Who is distributing digital content
- | **Final Users**, C2C (P2P)
 - ♣ Who is using (or should use) the digital content on behalf of the rights obtained
- | **Users**, in general
 - ♣ All the above actors that use in some way content on the basis of the rights obtained



Simplified Traditional value chain





Traditional value chain Issues



| Producers

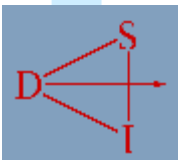
- ♣ Does not protected the content

| Protection performed before production

- ♣ By the distributor
- ♣ By a specialized third party

| Since B2B areas are (production, licensing, integration, etc.):

- ♣ Considered trusted
- ♣ Based on paper contracts
- ♣ Contracts are produced on the basis of a limited and not standard terminology, so that they are not easy interpreted and transported on other media, or channels, etc.
- ♣ Recently in Digital with XML, with DDEX





Traditional value chain Issues



| **Monitoring about what is done** on the content rights on the B2C:

- ♣ Authors, integrators and producers cannot verify what has been sold, they may ask to each single
 - Distributor (via reports, see DDEX, MPEG-21, etc.)
 - managing one or more channel
 - Collecting Society, e.g.: SIAE, SGAE, ...
 - Managing one or more territorial area and rights type
 - Etc.

| **The distributors:**

- ♣ Controls the selling of content depending on the business model:
 - Pay per play, monthly subscription, etc.
- ♣ In some cases do not control/verify the exploitation of each single right but only the access to the content.
 - High complexity of keeping under control all the user actions, user behaviour, action logs, event reporting, etc.





Elaborazione di Contenuti Digitali





HTML - HyperText Markup Language

- | non è un linguaggio di programmazione come C, C++, java, ...
- | non è un linguaggio di scripting come PHP, javascript, Perl,...
- | HTML è un linguaggio di 'marcatura' ovvero permette di indicare come disporre gli elementi all'interno di una pagina attraverso opportune istruzioni che vengono poi interpretate dai browser in modo da visualizzare correttamente la pagina all'utente finale.
- | Link utili: <http://html.it/>





HTML: Struttura della pagina (1)

I Per scrivere una pagina html:

- ♣ Si Inserisce una riga che indica che stiamo utilizzando le specifiche del World Wide Web (W3C: <http://www.w3.org/>) Consortium che riguardano il codice HTML
- ♣ Si usa il tag <html>
- ♣ Un documento HTML è normalmente diviso in due sezioni:
 - ➔ <head> : Contiene informazioni relative al modo in cui il documento deve essere letto e interpretato.
 - ➔ <body>: Qui è racchiuso il contenuto vero e proprio del documento





HTML: Esempio di pagina

```
| <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01  
| Transitional//EN">  
| <html>  
| <head>  
| <meta http-equiv="Content-Type" content="text/html;  
| charset=iso-8859-1">  
| <title>Prova.it</title>  
| </head>  
| <body>  
| <!-- Scriveremo qui -->  
| Qui il nostro contenuto  
| </body>  
| </html>
```





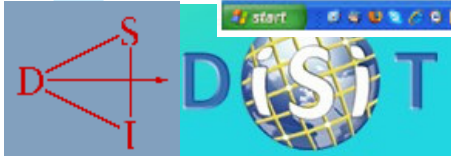
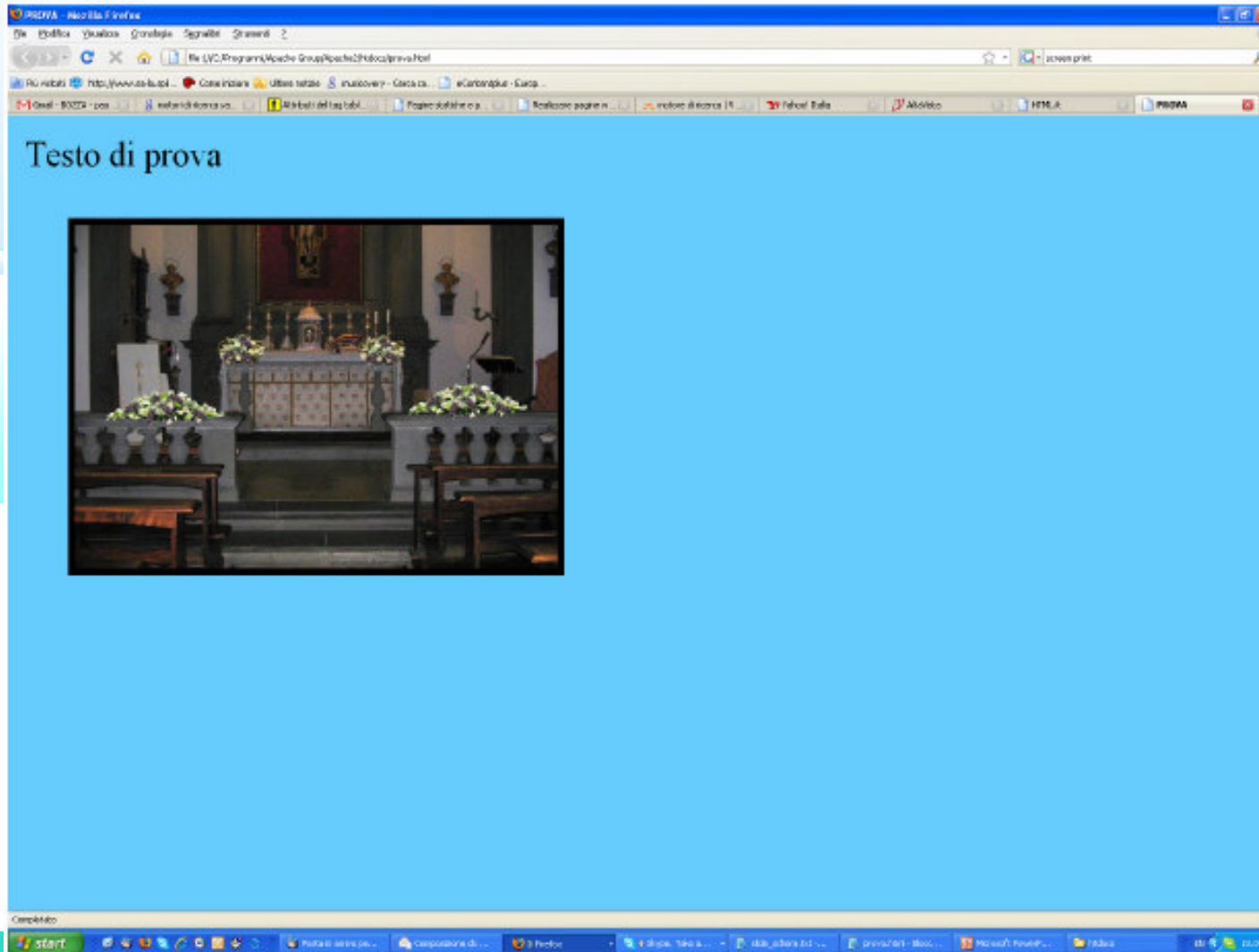
HTML: Esempio di pagina (2)

```
| <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01  
| Transitional//IT">  
| <html>  
| <head>  
| <meta http-equiv="Content-Type" content="text/html;  
| charset=iso-  
| 8859-1">  
| <title>Prova</title>  
| </head>  
| <body bgcolor="#66CCFF" lang="it">  
| Testo di prova  
|   
| </body>  
| </html>
```





HTML: Esempio di pagina (3)





I link (1)

I Un link è un collegamento tra una pagina e l'altra. I link testuali hanno i seguenti stati:

- ♣ Normale: link "a riposo", ovvero quando non è stato ancora seguito dall'utente. Solitamente è di colore blu ed è sottolineato.
- ♣ Visitato: quando l'URL della pagina compare nella cronologia dell'utente. Di default i link visitati sono di color violetto.
- ♣ Attivo: il link è stato cliccato e sta avvenendo il passaggio da una pagina all'altra (non utile oggi ma quando c' erano i modem lenti).





I link (2)

- I link secondo le impostazioni predefinite sono blu, per cambiare colore:

- ♣ `<body link="red">`

- Per cambiare colore ai link visitati (di default viola):

- ♣ `<body vlink="green">`

- Per cambiare colore ai link attivi:

- ♣ `<body alink="yellow">`

- La sintassi completa per impostare i link è quindi:

- ♣ `<body link="red" alink="yellow" vlink="green">`





Attributi dei link

| target:

- ♣ `visita HTML.IT`

| title:

- ♣ ` testo `

| hreflang:

- ♣ ``

| accesskey:

- ♣ `Torna all'home page di HTML.it`

| color:

- ♣ ` Testo Colorato ... `





Formati delle Immagini

| HTML supporta I seguenti formati:

- ♣ GIF (Graphic Interchange Format): le GIF sono immagini con non più di 256 colori (dunque con colori piatti e senza sfumature), come grafici o icone.
- ♣ JPG (Joint Photographic Experts Group): idoneo per le immagini di qualità fotografica
- ♣ PNG (Portable Network Graphic): è un tipo di immagine introdotto più recentemente, elaborato dal W3C per risolvere i problemi di copyright del formato GIF (che è proprietario). Offre alcune caratteristiche che gli altri formati non hanno (come il supporto al canale alfa per la trasparenza, caratteristica questa non ancora perfettamente supportata da ogni browser).

| ``





Dimensioni delle Immagini

- | Il browser sa quali sono le dimensioni dell'immagine solo quando è interamente caricata. Se ne indicano allora nel codice la larghezza (width) e l'altezza (height):

- ♣ ``

- | L'attributo alt è utile per specificare il testo alternativo finché l'immagine non viene caricata o nel caso in cui non lo sia affatto:

- ♣ ``

- | L'attributo longdesc permette di specificare un file con una spiegazione estesa dell'immagine:

- ♣ ``

- | L'attributo border serve per specificare la grandezza (in pixel) del bordo attorno all'immagine:

- ♣ ``





Posizionamento delle Immagini

- | E' possibile allineare immagini e testo utilizzando l'attributo align:
 - ♣ `<p>`
 - ♣ `<p> `
- | Altri valori possibili, utili per disporre le posizioni verticali di testo e immagini, sono: bottom, middle, top
- | Infine con hspace (horizontal space) e vspace (vertical space) è possibile impostare lo spazio (in pixel) che deve essere lasciato tra l'immagine e ciò che la circonda:
 - ♣ ``





Includere elementi multimediali in HTML

- | Prima di inserire un file multimediale (audio, video, etc) fare sempre attenzione al peso dei file (usabilità)
- | In base alle indicazioni del W3C, per inserire file multimediali si utilizza il tag `<object>` (Si noti che: in xhtml2 persino le immagini devono essere inserite tramite questo tag)
- | Un altro tag che spesso viene utilizzato per la multimedialità è `<embed>`: non rientra nelle specifiche del W3C, ma è stato usato a lungo, perché supportato sia da Internet Explorer, sia da Netscape Navigator, a differenza di `<object>`





Attributi di <object>

data

- ♣ questo attributo può essere utilizzato per specificare il percorso dell'oggetto da inserire nella pagina

classid

- ♣ dà indicazioni sul percorso dell'oggetto, ed è utile per identificare il tipo di plugin con cui eseguire l'oggetto

codebase

- ♣ serve per indicare l'URL di base, a cui il codice indicato in "data" o in "classid" fa riferimento

type

- ♣ è il tipo di oggetto da inserire (più esattamente è il MIME type dell'oggetto)

archive

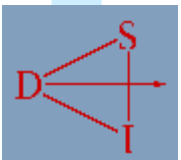
- ♣ si può indicare una lista di URL, separati da virgola, contenenti risorse relative all'oggetto inserito

width, height

- ♣ se necessario, si possono indicare una larghezza e una altezza

Si noti che all'interno del tag <object> è possibile specificare:

- ♣ una sintassi alternativa per i browser che non leggono questo tag
- ♣ eventuali parametri necessari all'esecuzione dell'oggetto





HTML: Includere un file audio con <bgsound>

- | Il tag da utilizzare è: <bgsound>
- | Sintassi : <bgsound src="url del file audio"
loop="numero di ripetizioni" />
- | Il suono può essere riprodotto:
 - | * una volta: loop="1" oppure omettendo l'attributo loop
 - | * due volte o anche di più: loop="2" basta indicare il numero di ripetizioni desiderato
 - | * infinite volte: loop="infinite"
- | NOTA: desueto anche perchè compatibile solo con Internet Explorer





HTML: Includere un file audio con <bgsound>

```
| <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01  
| Transitional//IT">  
| <html>  
| <!-- Solo per il broser Internet Explorer-->  
| <head>  
|     <meta http-equiv="Content-Type" content="text/html;  
|     charset=iso-8859-1">  
|     <title>Titolo</title>  
| </head>  
| <body lang="it" bgcolor="#ffffff">  
| <h1>Pagina con audio all'entrata</h1>  
| <bgsound src="beep1.wav" loop=2 >  
| </body>  
| </html>
```





HTML: Includere un file audio con `<embed>`

- | Si usa il tag `<embed>`
- | Sintassi: `<embed src="url del file audio" autostart="true" />`
- | `<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//IT">`
- | `<html>`
- | `<head>`
 - | `<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">`
 - | `<title>Titolo</title>`
- | `</head>`
- | `<body lang="it" bgcolor="#ffffff">`
- | `<h1>Pagina con audio all'entrata</h1>`
- | `<embed src="./airplane.wav" autostart="true">`
- | `</body>`
- | `</html>`





HTML: Includere un file audio con <object>

- | Per inserire un file audio seguendo le specifiche del W3C, è necessario utilizzare il tag <object>
- | Sintassi:
 - ♣ <object data="url del file audio" type="audio/wav" autostart="true">
 - | <embed src="url del file audio" autostart="true">
 - | </object>
- | Quando si inserisce il file audio, fare attenzione ai diritti d'autore (ad avere il diritto o l'autorizzazione a utilizzare tale musica)
- | Ricordarsi sempre di fare attenzione all'usabilità del sito





HTML: Includere un file audio con <object>

- | <object id="sound1" classid="clsid:22D6F312-B0F6-11D0-94AB-0080C74C7E95">
- | <param name="src" value="multimedia/audio/nomefile.estensione">
- | <param name="controls" value="All">
- | <param name="console" value="sound1">
- | <param name="autostart" value="false">
- | <embed src="url del file audio" type="audio/estensione del file (es: wav)" console="sound1" controls="All" autostart="false" name="sound1">
- | </object>





HTML: Includere un file audio con <object>

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//IT">
<html>  <!-- Solo per il broser Internet Explorer-->
<head> <meta http-equiv="Content-Type" content="text/html; charset=iso-
8859-1">  <title>Titolo</title>
</head>
<body lang="it" bgcolor="#ffffff">
<h1>Pagina con audio all'entrata</h1>
<object id="sound1" classid="clsid:22D6F312-B0F6-11D0-94AB-
0080C74C7E95">
  <param name="src" value="multimedia/audio/airplane.wav">
  <param name="controls" value="All">
  <param name="console" value="sound1">
  <param name="autostart" value="false">
  <embed src="airplane.wav"
    type="audio/wav" console="sound1" controls="All" autostart="false"
    name="sound1">
</object>
</body>
</html>
```





HTML: Includere un file video (1)

- | Anche nel caso dei file video si usa il tag <object>
- | Sintassi:
- | <object data="filmato.mov" type="video/quicktime" width="164" height="140">
- | <embed src="filmato.mov" type="video/quicktime" width="164" height="140">
- | </object>
- | Inoltre è possibile utilizzare l'attributo "classid", con gli appropriati parametri, per aprire barre di visualizzazione e controlli vari ed eventuali (come visto per i file audio)





HTML: Includere un file video (1)

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01  
Transitional//IT">  
<html>  
<!-- Solo per il broser Internet Explorer-->  
<head>  
    <meta http-equiv="Content-Type" content="text/html;  
charset=iso-8859-1">  
    <title>Titolo</title>  
</head>  
<body lang="it" bgcolor="#ffffff">  
<h1>Pagina con video</h1>  
    <object data="MozartVideo.mov" type="video/quicktime"  
width="164" height="140">  
        <embed src="MozartVideo.mov" type="video/quicktime"  
width="164" height="140">  
    </object>  
</body>  
</html>
```





HTML: upload di un pdf

- | To insert a PDF file into your HTML document, simply code:
- | `Name of PDF File Here`

- | `<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//IT">`

- | `<html>`

- | `<!-- Solo per il broser Internet Explorer-->`

- | `<head>`

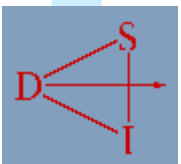
- | `<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">`

- | `<title>Titolo</title>`

- | `</head>`

- | `<body lang="it" bgcolor="#ffffff">`

- | `<h1>Pagina con pdf</h1>`





LINK

