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**ART ON DEMAND**

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## **Abstract**

The conference will expose the objectives of the project, its technical architecture, including a “live” use of the pilot platform for contents search and personal publishing. It will outline the proposed relationships with contributing contents partners and the planned deployment model.

Art On Demand objective is to bridge the gap between Art Institutions, contents owners, artists, rights owners and the public. It offers the first specialized deep Search/Access services on both text and images for arts audiences and a new distribution channel through a network of large/small formats print kiosks installed at “brick and mortar” locations. These services are embedded in a secured community software, allowing instant messaging, telephony, video-conferencing, pc share, The AOD index will give a single access to several millions web pages, documents and images. Contents owners could add their electronics documents and users / subscribers will search AND find pertinent answers. These services and products will be distributed within a fully secured process, including appropriate rights protection and revenue distribution process.

AOD Finder a multilingual, multi-format access engine able to drive the user from its own “mind set” to the contents.

AOD Summarizer: will automatically highlight and extract key sentences from text documents for fast reading and raw abstracts preparation,

AOD Publisher: drag and drop texts and images to prepare the publication and share it with teachers, colleagues, friends and family, with automated citations, AOD Communicator (Peer to Peer hybrid software) allows AOD Communities Members (universities, schools, classes, group of students) to share published texts and images and securely “source” the contents from member’s computers

AOD will centrally manage web crawling and indexing, link and index publisher’s contents, insure process quality control, manage digital rights payments (images and texts collections), insure an end to end secured process for the contents and the copyrights owner as well as the privacy of users..

Advantages for the Art audience: Students and arts fans will have access to the best and most complete contents index on Arts, will be able to publish within their community and use all media of communication (messaging, telephone, sms, webcam, pc share) with other members of their AOD community.

Advantages for the AOD Print Franchisee: A very large choice of contents will help build “local” digital portfolios, manage rapid changes in buyer’s behavior, taste, and will propose “event’s” based promotion, providing a higher return on shop square footage, and also act as a traffic builder.

**Keywords:** Web Art Contents, Large formats printing, art education, digital rights management, art communities, Print franchises

## Résumé

Presentation du projet Art On Demand, avec la participation du C2RMF, de l’Agence Photographique de la Réunion des Musées Nationaux, Hewlett-Packard Compaq, l’ESISAR du réseau Institut National Polytechnique de Grenoble, le groupe Fratelli-Alinari

La conférence qui associe Alain Minodier et Christian Lahanier, exposera les objectifs du projet, son organisation actuelle et future, l’architecture technique et comportera une utilisation en réel de la plate-forme pilote dans les domaines de l’accès multilingue et de la publication personnelle ou professionnelle. Une workshop spécifique est aussi prévue dans les locaux du C2RMF pour permettre aux institutions intéressées d’approfondir le sujet et préciser comment elles peuvent immédiatement contribuer et bénéficier des services.

L’objectif du Projet (Global Art On Demand Initiative) est d’établir à la fois un réseau virtuel permettant l’accès unifié aux contenus sur l’Art sans modifier les systèmes existants ni entrer en concurrence avec les sites Internet existants de créer des réseaux virtuels de groupe d’utilisateurs (écoles, institutions, recherches) permettant les communications multi-media interpersonnelles, le partage des contenus, tout en créant un espace sécurisé protégeant à la fois les droits numériques et la vie privée des utilisateurs. Un exemple de base de donnée partagée (EROS du C2RMF et AOD) sera explicité

La même architecture technique sera dupliquée pour permettre de créer un réseau de points d’impression numérique à la demande disposant d’un accès protégé à une très vaste source de contenus numériques destinés aux impressions papier/canvas/tissus de haute qualité ainsi que la création de CD/DVD à la demande dans le domaine de l’éducation.

AOD Finder: le moteur de recherché multilingue, multi-formats permettant aux utilisateurs une navigation profonde dans les contenus,

AOD Summarizer: le moteur d'extraction facilitant la lecture rapide des contenus de gros volumes en 15 langues (pdf notamment) et réalisant l'extraction automatique des phrases clefs des documents sources pour assister la publication automatique de résumés, l'utilisateur pouvant déterminer ses critères d'extraction ou d'exclusion.

AOD Publisher: trouver est indispensable, mais il reste ensuite à publier et diffuser. le logiciel permet par simple "selection/glissement" d'inclure des segments de texts et d'images dans des documents de publication tout en assurant la gestion automatique des citations des sources.

AOD Communicator Le logiciel permet de créer des groupes collaboratifs ayant accès à tout ou partie des index, chaque membre du groupe disposant des moyens de communication interpersonnelles (Messagerie, Téléphone Internet, Webcam, partage d'ordinateur et de fichiers) dans un environnement sécurisé à la fois pour les contenus (cryptage) et vis à vis des utilisateurs.

L'objectif d'AOD est de permettre aux détenteurs de contenus et aux groupes d'utilisateurs de participer au projet sans aucune modification logiciel à leurs systèmes existants et de voir leurs contenus publiés et leurs utilisateurs bénéficier des services en quelques heures.

La conférence présentera l'état d'avancement du projet, inclura une démonstration portant sur plus d'un million de documents (textes et images) et décrira les hypothèses de plans de déploiement et laissera une large place à la fois aux questions de l'audience ainsi que celles de l'équipe de projet.

**Mots clefs :** Art, Art & Culture, Art et Education, Moteurs de recherches, Impression grands formats, Gestion des Droits numériques, Impression à la demande, Publication électronique

## **Preliminary:**

Art On Demand Project has been made possible through the Art & Science Foundation of Hewlett-Packard Compaq <http://www.hewlett-packard.de/unternehmen/deutschland/initiativen.html>, a group of innovative software companies and consultants, Research (C2RMF at <http://www.c2rmf.fr/>) and Education Institutions, Digital Images Publishers (RMN at <http://www.rmn.fr/>, Alinari, at <http://www.alinari.it/>).

The AOD conference is presented by Christian Lahanier from the C2RMF and Alain Minodier.

**Art Contents access:** There are many websites or Intranet servers hosting Art Contents. There are also very important initiatives such as the AMICO consortium, the ArtStore project providing Education Institutions with high quality digital contents, specially tailored from highly reputable Institutions and experts. There are many Internet “visible” and free sources, but pertinent navigation in Arts digital contents is a frustrating exercise. All sites use different access techniques and Art “language” is like any other, and even more than other, intermixed with user’s mind set. Consumer market search engines are not up to the task. Arts pieces (paintings, sculpture, photos, video) are now available in digital format but finding them requires tedious browsing on many websites, and the time to find eats up on the time to learn and the time to enjoy.

**Paper Publishing:** The publishing industry produces books and prints, generally of high quality and high prices. Inventory is often limited for costs and spaces reasons, and multimedia products like CD Rom, DVD are designed for large audience and imposed navigation. “Impulse buying” is difficult to create because of the physical constraints of large print displays. The product mix must be built in advance and cannot satisfy all market segments. Enlarging the distribution network is costly, as it requires building a large inventory of prints.

**Print on demand is emerging.** It is currently centralized, expensive and delivery can take several days or week. It lacks information (informative or academic) on the work, the artist, history or context, and do not fully satisfy expectations of all segments of interested audiences.

**Digital Rights Management:** In most of the cases, paintings ownership, conservation, public display are spread between different entities. All this makes digital prints activities difficult to manage up stream (what to print) and down stream (when and where to sell and securely collect copyright fees) . High quality printing is on par with high quality digital music dissemination. High resolution images, even if they are still “heavy” in terms of storage, can be distributed as easily as digital video and we could expect the same problems than the one already experienced in the music market. However, Museums, artists and works images are not as powerfull as the major music studios. They also need revenues to digitize their archives, enlarge their exposure, develop and promote Art awareness and education.

**Art Institutions revenues:** Museums and Artists are starving for new revenues, but are not geared to build distribution networks or efficient marketing organization. Websites offer the opportunity to remotely buy prints, but buyers cannot measure the print quality from a home computer screen, and must tediously browse through multiple websites and disparate search engines.

## **“Public” consumption of arts contents and arts prints**

Images and Art Education have been recognized as one of the best way to open children’s mind. Learning history, understanding foreign culture through Art exposure, making art contents available to young audience are also among the best ways to balance- if possible- the growing influence of video games and commercial TV shows. However, teachers and librarians face the daunting task of feeding their LANs and students PCs with affordable and qualified contents. Search engines like Yahoo or Google are offering very wide access, but all lack specialization and deep search capabilities. Art Research, History, Social and Literature publishing are largely intermixed and again, universities students, as well as professional need the tools set to help find their way in Arts and Arts related contents.

The public is exposed to Art prints when he is in context of museum, a city or monument visit or specialized shops such as art galleries and specialized bookstores. Impulse buying is not facilitated because the choice is limited and carrying prints on a vacation trip is cumbersome. Home decoration, furniture stores, where someone is in the mood to buy, have very limited collection of prints (if any) and every one ends up with the same piece. Schools and Universities need to display and show Art pieces and expose them to their students in large numbers. Aside widely and almost standardized masterpieces, prints are hard to find, and when available, expensive.

**Art On Demand:** Art On Demand objectives are to address the issues of contents availability, access and wide distribution by offering the first specialized deep Search/Access services on both text and images for arts education audiences and establish a new distribution channel through a network of workstation and printers installed at “brick and mortar” locations. These services and products will be distributed within a fully secured process, including appropriate digital rights protection and revenue distribution process.

## **Art on Demand Services**

Finding, locating and managing the Art On Demand print process: Access to multiple sources will be unified through a single worldwide set of indexes, regardless databases sources formats. Search will be automatically extended to data identifier such as Authors ID, art piece name and owner’s credit to multiple, automatically build categories and concepts, textual presentations, comments, descriptions. Access to Art data needs a multilingual, multi-format access engine able to drive the user from its own “mind set” to the contents. The access engine must also find and display documents from many sources, linked to a contractual document to support the security and rights management process. The use of advanced linguistics almost immediately bridge the gap between existing contents and the future “linguistic web” process This will be achieved using AOD Finder.

High definition Images, for on demand single copy printing could also be found using AOD Finder. Digital rights could include both AOD proprietary scheme and content’s

owner choice of protection. Image for Print will be accessed through a dedicated platform and images will be distributed within a fully secured process, from Contents “source” down to the AOD printer.

Relationships with Contents providers: Indexed contents will be made available through several process and contractual relationships:

## **Web crawling and indexing:**

### **Public websites**

They will be crawled, analysed and indexed on a regular basis. Indexing is automated and websites will be detected by AOD Editorial staff, proposed by AOD members or by their publishers themselves. There is no “paid positioning” or “ranking” in AOD Indexes. Only pertinence to the query search is taken into account in the results display and AOD Editor will not apply “aesthetics” judgment. Deep filtering will be used to detect websites containing pornographic text, racism or highly questionable contents. Those sites will not be necessarily all excluded, but will be set-aside in a dedicated section of the Index to prevent access by young public. AOD Editorial staff will have the final word on the classification and access rules.

### **Voluntary submission:**

Paid Contents: Publishers will be proposed to either open a gateway to have their contents set-up for indexing and positioned in a dedicated section or use AOD Indexing technology on their own servers to allow AOD users to directly access their index. Users could then “jump” from the AOD index to all associated indexed sources. AOD will be able (end 2003) to search all indexes with one click. Display of the source document(s) will only be possible if the community and/or the users have subscribed to the source.

**Private Intranet Contents:** Contents publishers will also have the option to use the AOD Indexer for their own website or Intranet for “private” or internal contents. Their users will have then the option to search in both their own contents and AOD published index (free or paid).

### **Advantages of the AOD process architecture**

This combination of contents collection and index publication will give contents providers the capability to serve user's communities through fine tuned strategies for service level, visibility and revenue generation. Pricing could be adjusted for the Education, professional, consumers and as the access is managed within the AOD community network, they will have a hand on the dissemination of their valuable publishing effort. As AOD do not store the contents it act also as a traffic builder for the websites.

“Communities” will have access through a single point to multiple sources (whether public or private) could authorize selected users to access hand picked selected index as well as their own contents. Teachers could have access to a larger collection, could keep their own work inside the school Intranet for their students, before publication, parents or teaching support could be granted access for assistance, all within a moderated and managed community.

### **Pre-publishing tools**

There are many valuable documents prepared for “paper publishing” now available on the web. A lot of them are electronically published in PDF formats and could be lengthy. Their full display could load the network just to find that only part of the document is relevant to the search. A special feature of the AOD process will allow both “pre-process” or “post process” the document to automatically extract key sentence of the documents (with the possibility to preset terms and expression for either include or exclude sentences). Pre-process will help contents provider to automatically produce an acceptable abstract and help the user (or teacher) to prepare support documents without spending a lot of time in pre-reading sources documents. The summarization software output is also a great tool for “fast reading”, as it spots core contents, with user's option to define words and expressions he would like to be highlighted or excluded.

At this point of the AOD process, we have satisfied several key requirements, all within a secured environment and in full automated process:

Help find relevant contents from multiple sources,

Help fast reading and summarization of the sources,

This where real work of the user starts: acquire knowledge, build his own opinion and start producing his own publishing work: a report, schoolwork, memo, analysis, or simply share with friends and family. AOD Communicator provides the “down stream” software to facilitate collection of extracts (text and images) with a simple, non-intrusive, single piece of software with a drag and drop function. Sources will be automatically documented, citations will be collected and the publication process will be greatly facilitated. AOD plan to provide several level of the software including specialized viewers for image visualisation and extraction. The user has also the option to keep his extraction “private” or to publish them within its community.

### **Community services**

Being part of a community (college, class, work group, company) means also to be able to exchange and share not only digital contents, but must include immediate communication. AOD communicator provides the tools to allow members to use individual and group instant messaging, IP telephony, web cam conferencing, PC sharing, all within one click. Through the AOD dashboard, the user has access to all services in a single click: search, find, summarize, collect contents, share them, meet and communicate with other members.

All this is done within an encrypted exchange process with on going authentication of the user. Filtering and “events” collection could be implemented to help “moderate” the entire exchange process.

### **Secured distribution of collections**

AOD suite includes an easy to use encryption digital contents scheme dedicated to art distribution. The art contents owners can create copy protected art collections CD's using the ALBX Clustone /AOD scheme. AOD users could also hand pick contents they like best (or need to propose to their students) and build a customized, copy protected CDs. ALBX CD's are fully encrypted and only readable by authorized users. Security settings

include the duration of use and/or the number of times the user can view the CD as well as back-office information. ALBX files are multi-media, and the same file can contain images, video, audio and texts.

### **Summary of key advantages of the AOD architecture**

Digital Arts access and distribution must be easy to deploy worldwide, economical to operate (servers, band with, data collection and distribution, quality and centralised financial control,) and fully secure to protect rights owners against copying or counterfeiting. AOD Communicator allows AOD Members to share published texts and images and will help “source” hosts storing the contents (the source) to securely multiply sourcing distribution points. The proprietary encryption process will insure that images could not be copied or reused outside AOD communities without a full control. AOD community software technology is natively compatible with IPV6 protocol.

The digital print process will use Hewlett Packard-Compaq, world leader in digital print technology, software and hardware. The process is build around AOD Secured Smart Card and AOD Digital Print package, based on Caldera software platform. AOD will centrally manage quality control, support and payments at each AOD participating station level, to insure an end-to-end secured process for the contents and the copyrights owners.

Advantages for the Art audience: Students and advanced amateurs will have access to the best and most complete contents index on Arts, including navigating into images for local display and low-resolution printing as well as the tool to publish the results of her/his searches. Potential buyers will find “his/her” images and associated audio/video to purchase a digital print in many locations when and where they are “in demand”. Delivery will be flexible and fast, with immediate pickup or could be printed at the nearest AOD franchise point and home delivered.

Advantages for the Contents and rights owners: Contents owner will generate new revenues stream without the pain to rebuild their text and images databases, all this with a secured copyright protection and fully controlled workflow. Payments will be collected by AOD and transferred to designated accounts in a fully secured and auditable process.

Advantages for the franchise point: A new revenue flow, using limited floor space, will be created. Break even should be achieved easily, even with limited volumes, and will not require specialized staff. A very large choice of contents will help build “local” electronic portfolios, insure following rapid changes in buyer’s behavior, taste, and will propose “event’s” based promotion,

## **Planned AOD Project development**

The AOD initiative has been initiated as a project within the Art & Science Foundation of Hewlett-Packard with a core of founding partners and an initial investment of 300 K \$, in terms of equipment, software and manpower. We are currently working on the most appropriate deployment model. Final decisions will be validated end October 2003. We are considering establishing several entities, in charge of core functions of the AOD Services proposal. Among possible alternative, we are considering there are:

A non for profit model, where several sponsors will finance the AOD deployment up until it is self sustainable through software and services revenues,

A mix model, where contents sourcing, aggregation and qualification is insured through a non-for profit entity, closely associating Art Institutions and highly qualified professionals. Operations and distribution will be managed as a service business, with different pricing level to address specific user’s segments: Education, Universities, Professionals, consumers, AOD Print on Demand Franchise network, the non for profit entity being a significant shareholder of the operating entity and distribution channels.

A “pure play business model”, mixing several pricing schemes,

## **Status Report at mid-August 2003**

Fully functioning AOD indexes platform, hosting over one million pages and images, users software and a pilot Brick and Mortar delivery Print on Demand Kiosk,

Contents owners market survey, potential acceptance evaluation based on a hand's on practice of the AOD network, contractual relationships for key components,

Universities and Art Education Institutions acceptance, pricing and features validation,

Right management architecture, procedures, policy and contracts frame work (images, photos, video, text)

Design and architecture of centralized electronic payments, revenues management and distribution,

“Brick & Mortar” market survey, potential acceptance, and key contractual relationships,

Business Model construction, simulations and validation,

Business plan construction, management team sourcing and financing research.

## **Appendix 1**

This will be presented through several slides of the power point. It is subject to change between now and the ICHIM conference, as new partners are expected to join the project

### **Current Project Management structure, Participants and contributions**

#### **AOD Management Committee:**

Founders, Jacques Misselis (HP Education France and Art & Sciences founder), Christian Lahanier (the Center for Research and Restauration of French Museums, (C2RFM), Andrea de Polo (Fratelli/Alinari)

#### **Project Management Team:**

Alain Minodier, Patrice Giraud, Olivier Hoch, Patrick Constant

#### **Software integration:**

Clustone Sophia

ESISAR (5 graduate engineers) in charge of Kiosk Integration with assistance from Caldera and tests,

Pertimm (1 project manager)

#### **Identified Core participants:**

Role: Provide software integration resources, initial contents and tests sites,

Software and hardware participating companies

Hewlett Packard Digital Printing

Pertimm, (Paris, Orlando)

Pertinence, (Paris)

Clustone (Sophia-Antipolis)

Caldera,

Validy

#### **Contents providers:**

C2RFM

Réunion des Musées Nationaux (Paris)

Fratelli-Alinari

Additional participants to be added later,

**Universities/Education sector participants**

Ecole du Louvre,

ESISAR Valence (ENSIMAG group)

DBMS School, Lycée du Parc Imperial, Centre International de Valbonne,

Centre de Recherche et de Documentation Pédagogique (Nice)

Centre International de Valbonne

Lycée du Parc Impérial (Nice)

Additional participants from the Arts & Science Network,