
Sharp's Approach to e-book Business

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Sharp's vision of e-book service

Next generation e-book solutions through collaboration of the service and devices

Aimed at the broad lineup of content partners - newspaper companies, publishers and agencies.

<Regular delivery: Updating content type>

<Sellout: contents accumulation type>

Newspapers

Magazines

Books

Comic contents

Service

Next-gen XMDF

The service and device are integrated by platform technology

One source multiple use

Service Platform

Production tool

ID/Device cooperation

History/Access analysis

Devices

Provides ease-of use with e-book-focused devices

Purchase

Delivery

Implementation of one-stop conversion from draft articles to delivery

"Daily mobile"



"Mobile-at-home"

Providing a total solution from contents creation process to the customer

■ XMDF(e-book Format)

- Authoring tool
- Format

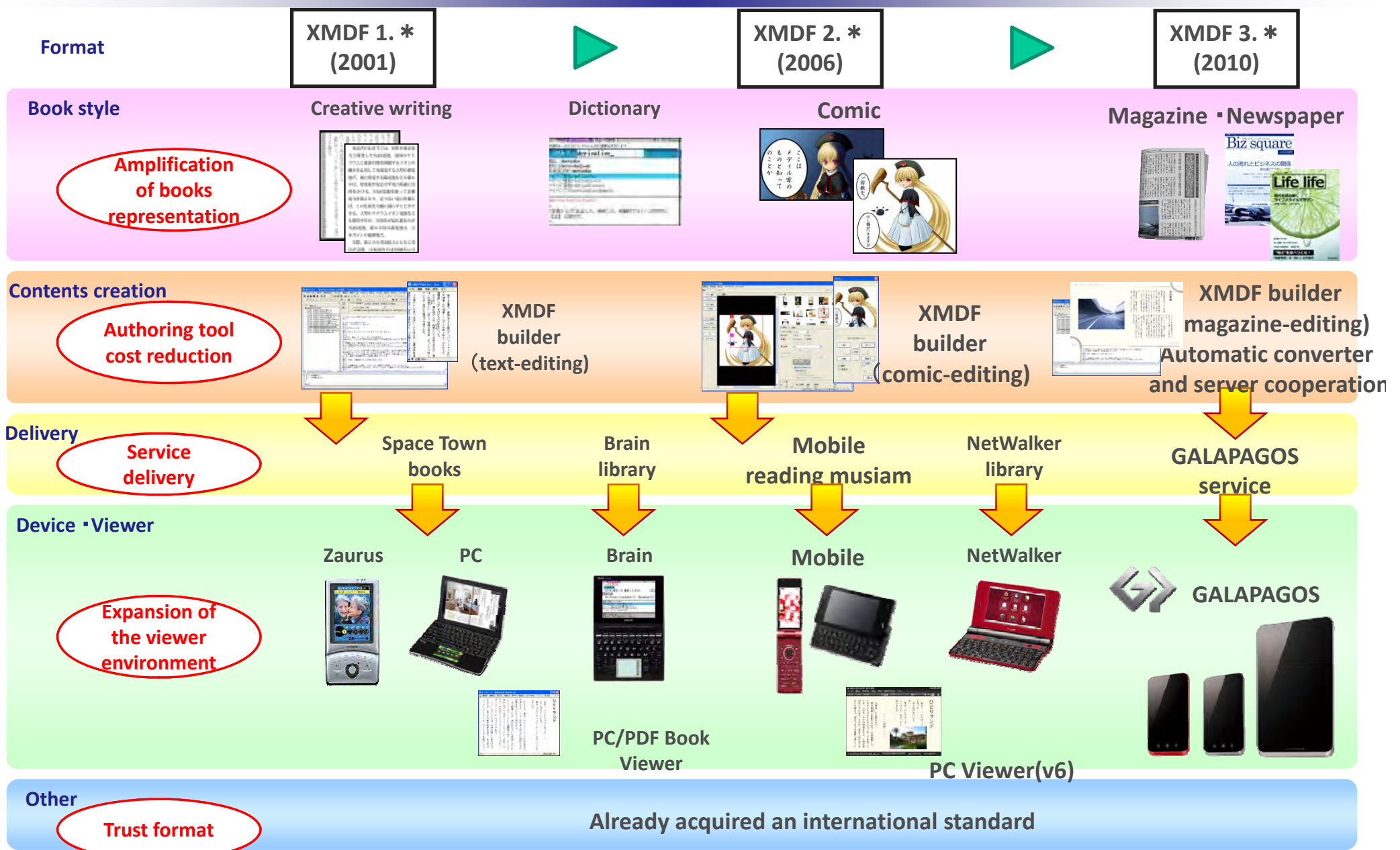
■ Server system

- Book store
- Regular delivery
- Advertisement management
- Cooperation w/ext. services

■ E-book-focused devices

- High-definition color display
- Advanced UI
- Viewer engine
- Low power-consumption

History of Sharp's e-book business



Amplification of books representation

Authoring tool cost reduction

Service delivery

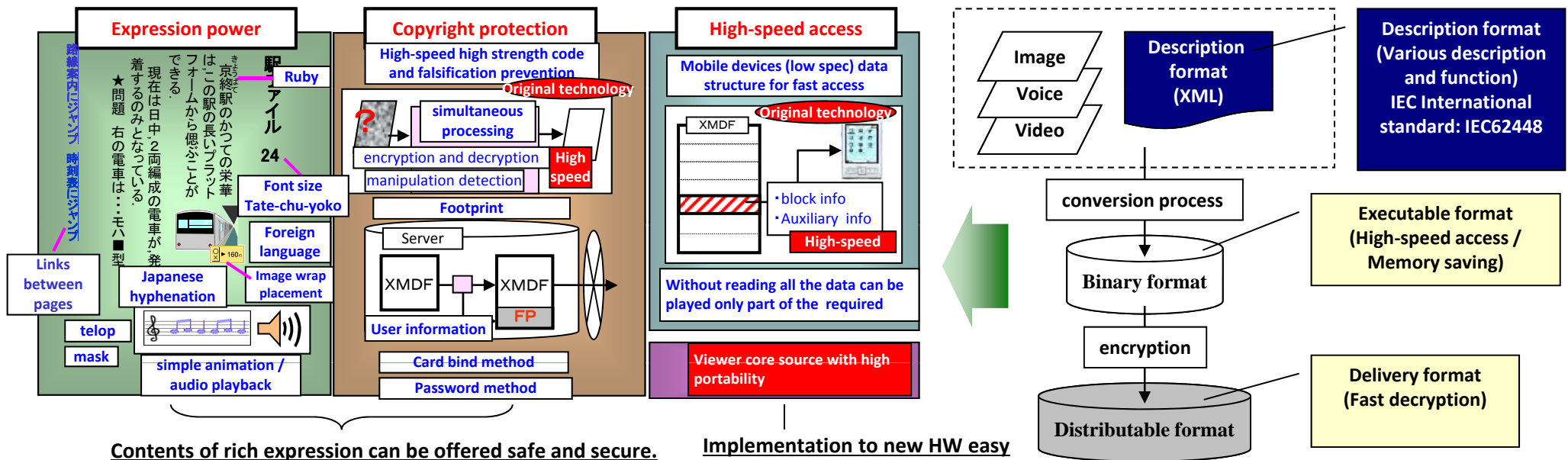
Expansion of the viewer environment

Trust format

XMDF technology – an outline

What is XMDF (ever-eXtending Mobile Document Format)?

- XMDF is a rich document technology consisting mainly of a description (XML) format , data encryption algorithm and data structure that allow rapid access and small memory footprint.
- An IEC int'l standard (IEC62448 Ed.2 Annex B) was published (Feb 2009) based on its XML format.
- Its basic features are colorful expression, copyright protection, high-speed access (below left).
- XMDF has become a de facto standard in the domestic text electronic book field (adopted as the official adoption with KDDI and SBM).
- Equipped with functions for e-dictionaries and the comic contents.
- Materials (text, image, voice, animation, etc.) are combined ,archived and encrypted to make distributable XMDF contents .(below right)



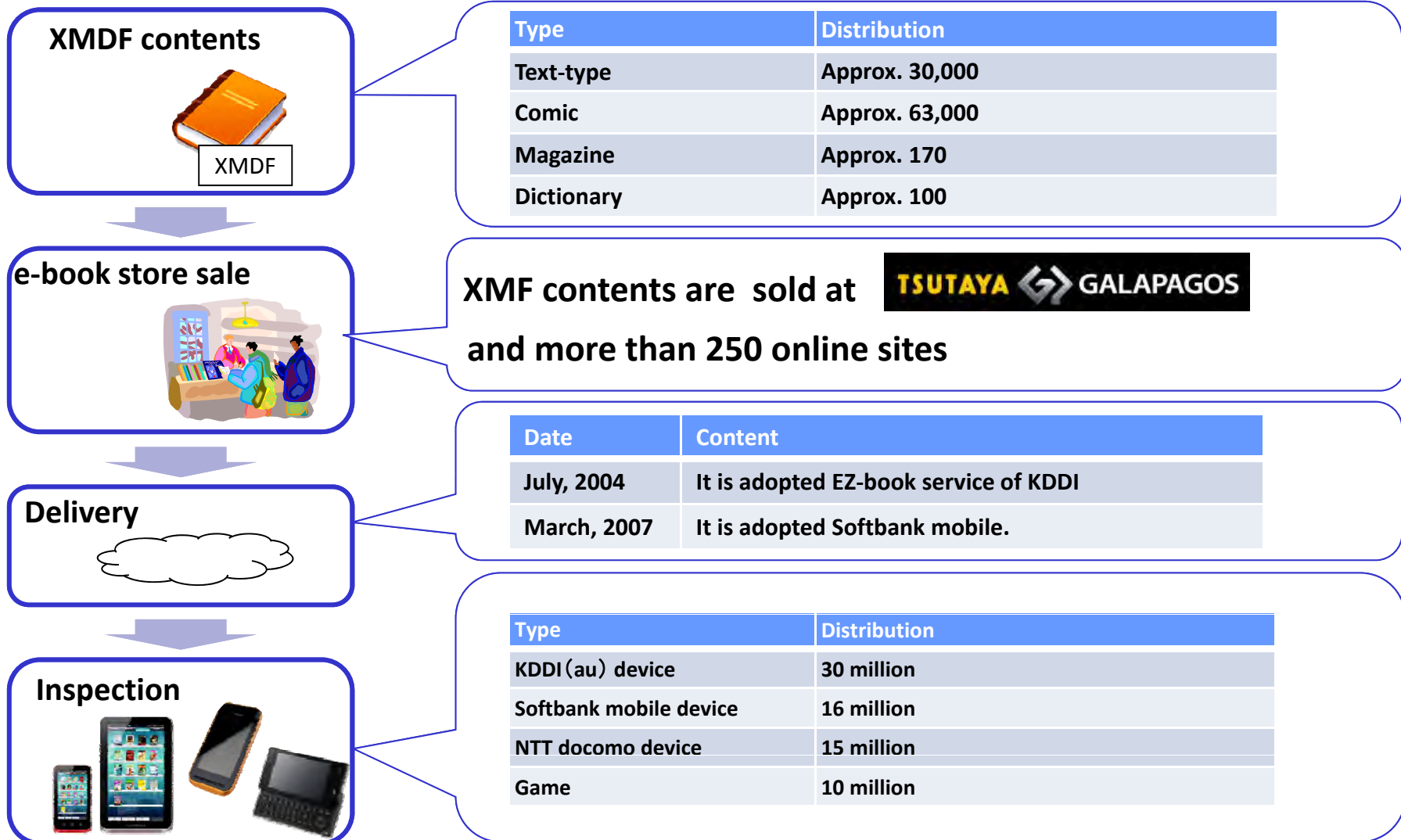
XMDF - History

| Date | Function | Acceptance |
|----------------|---|--|
| July, 2001 | Functions for text (Vertical writing, Ruby, image, Line-break, etc.) | Zaurus library service begins |
| May, 2001 | Multimedia functions (sound, animation, etc.) | Adopted for M-stage book service of NTT docomo (for PDA) |
| March, 2003 | Basic dictionary function (search by index) | Installed on the electronic dictionary hardware |
| July, 2004 | | Adopted for EZ-book service of KDDI |
| June. 2006 | Comic function (cell form) | Adopted for Manga-capsulre service of SHUEISHA Inc. (for mobile) |
| March, 2007 | | Adopted by Softbank mobile |
| August, 2008 | Enhanced dictionary function | Brain library service begins |
| February, 2009 | | IEC issues an international standard to the description format (IEC62448 Ed.2) |
| December, 2009 | Enhanced comic function (page/cell forms) | Adopted for comic delivery of SCE for PSP |
| December, 2010 | Image form, hybrid form, and multi-layout form added. | TSUTAYA GALAPAGOS service begins in which newspaper and magazine are delivered as well as books |

IEC
international
standard
IEC62448

XMDF - Popularity

- XMDF contents are sold at a large number of e-book stores incl. TSUTAYA GALAPAGOS.
- XMDF-capable devices number tens of millions.



Basic text functions

- Japanese-specific writing style (Tate-chu-yoko), ruby, Line-break, Gaiji support
- Paragraph, Indent, Font / Size / Color / boldface, under line can be specified
- Wrap the images can be represented
- Western language function (Hyphenation, Word wrap, Justification) support

Vertical writing

Boldface

Underline

Ruby

Paragraph (Justification)

Paragraph (BOL indent)

Horizontal writing

Gaiji

Paragraph (indent)

Color

Line break

Tate-chu-yoko

Wrap

Font size

Extended text functions

- Background image, BGM, and visual novels capabilities
- Content, Link jump and Clickable map functions
- Audio/Animation/Video playback and other multimedia capabilities

Background image



Advance to the next page
No-return to previous page

Advance to the next page
Return to previous page

Visual novels function
Function to control movement of the front page / Next page

BGM



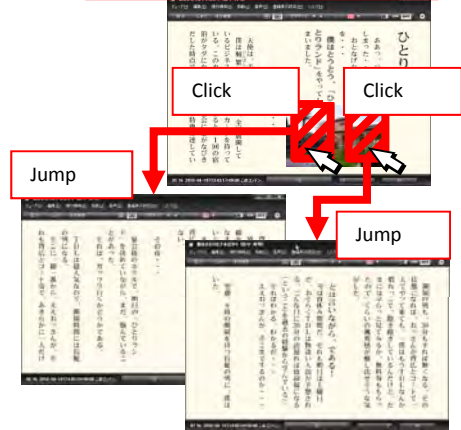
Content



Link jump

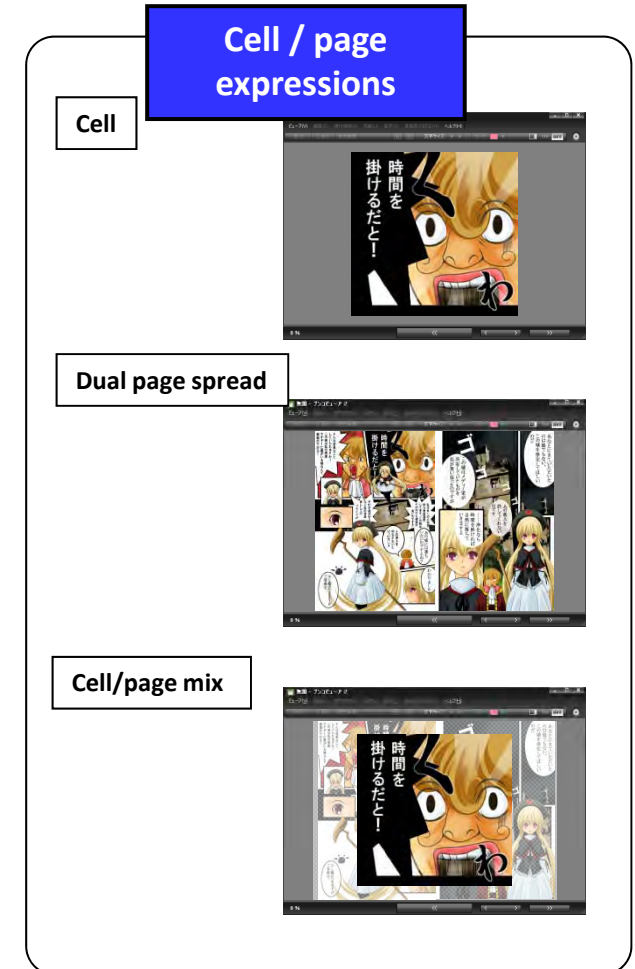
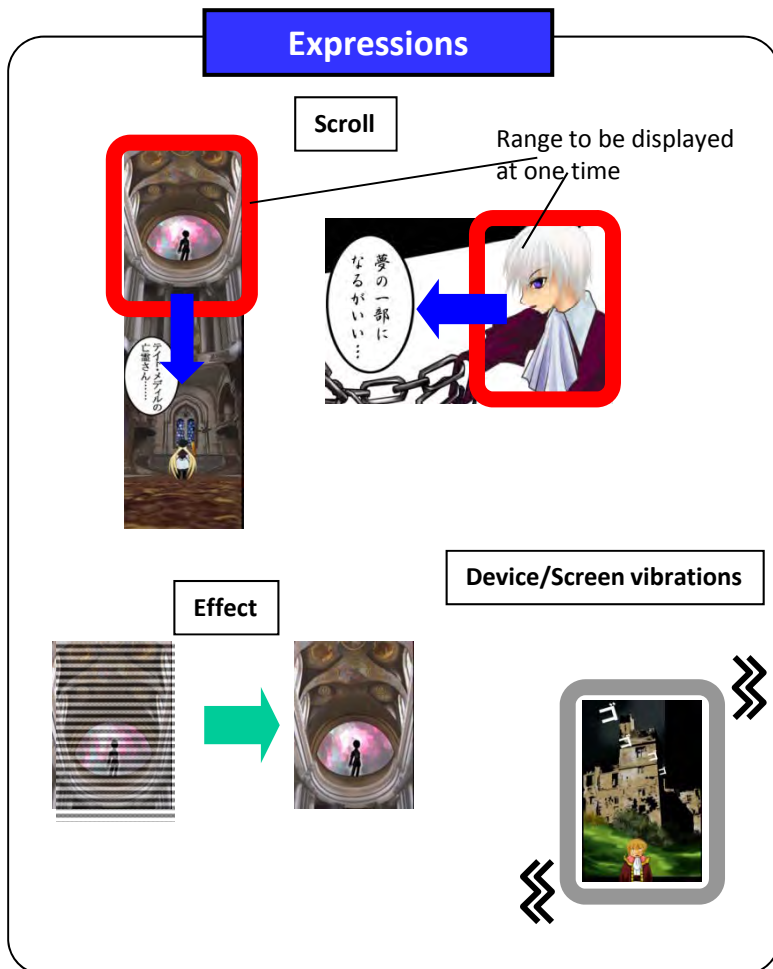


Clickable map



Comic functions

- Cell-based expression (scroll, effects, screen vibrations, etc.) (for mobile)
- Wide-screen comic utilizing the advancement of recent mobile phones handsets
- Cell, dual-page spread, cell/page-mix expression (for pc)



Functions for dictionaries

- Narrowing-down/Matched-and-after searches/Kanji search, multi-content search, Wildcard /Word-end search support

-> Various modes of use are supported.

※The XML format for X MDF dictionaries, was integrated with LeXML format (by Digital Assist Inc.) for an IEC standardization work.

(Reference: IEC TC100/TA10 Page http://tc100.iec.ch/about/structure/tc100_ta10.htm)

■ Narrowing-down

Input letter: あいけん

Results (Narrowed down to those containing the input string)

Preview of definition for search results (Function for viewer)

■ Matched-and-after

Matched word those that follow in the lexicographical order

■ Kanji search

愛犬

■ Multi-content

Search several contents at once

■ Wild card search

あ??らがす

Blanks are shown as ~

Specify the number of letters of the blank

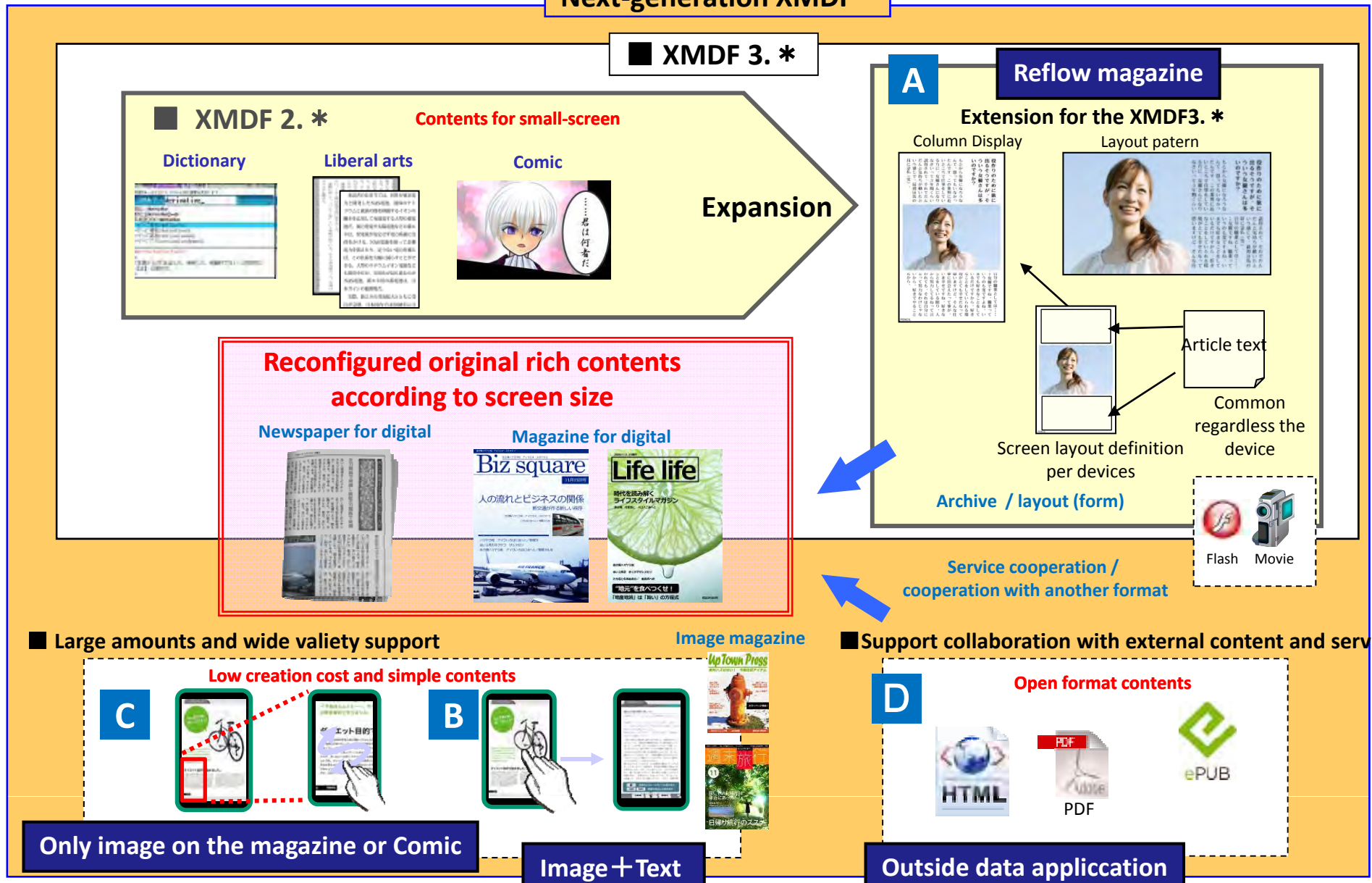
■ Word-end search

あ~がす

~らがす

Next generation X MDF - Power of expression

Next-generation X MDF

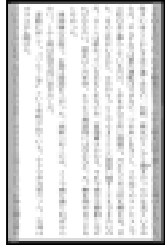


Next generation XMDF –Viewer features

Representation to the traditional book + <the viewer> can express unique new e-books

Multi genre experience by various content representations and union operation feelings

Novel



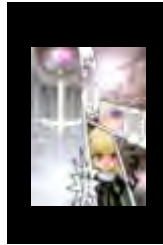
text

Magazine



image

Comic



frame

HTML



New newspaper
New magazine

mix

(image + text, HTML + text and so on.)



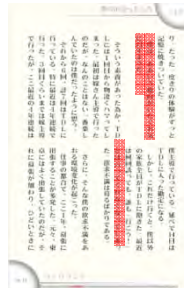
Various contents can be read by the same operation (turning pages, zooming).

Various functions can be utilized by using electronic



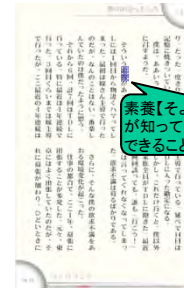
Various function is installed in the menu

•marker function



The place in which it was anxious can be marked, and call the marker part at any time.

•dictionary cooperation function



As for the word that doesn't understand,, the dictionary is opened.

•Content function

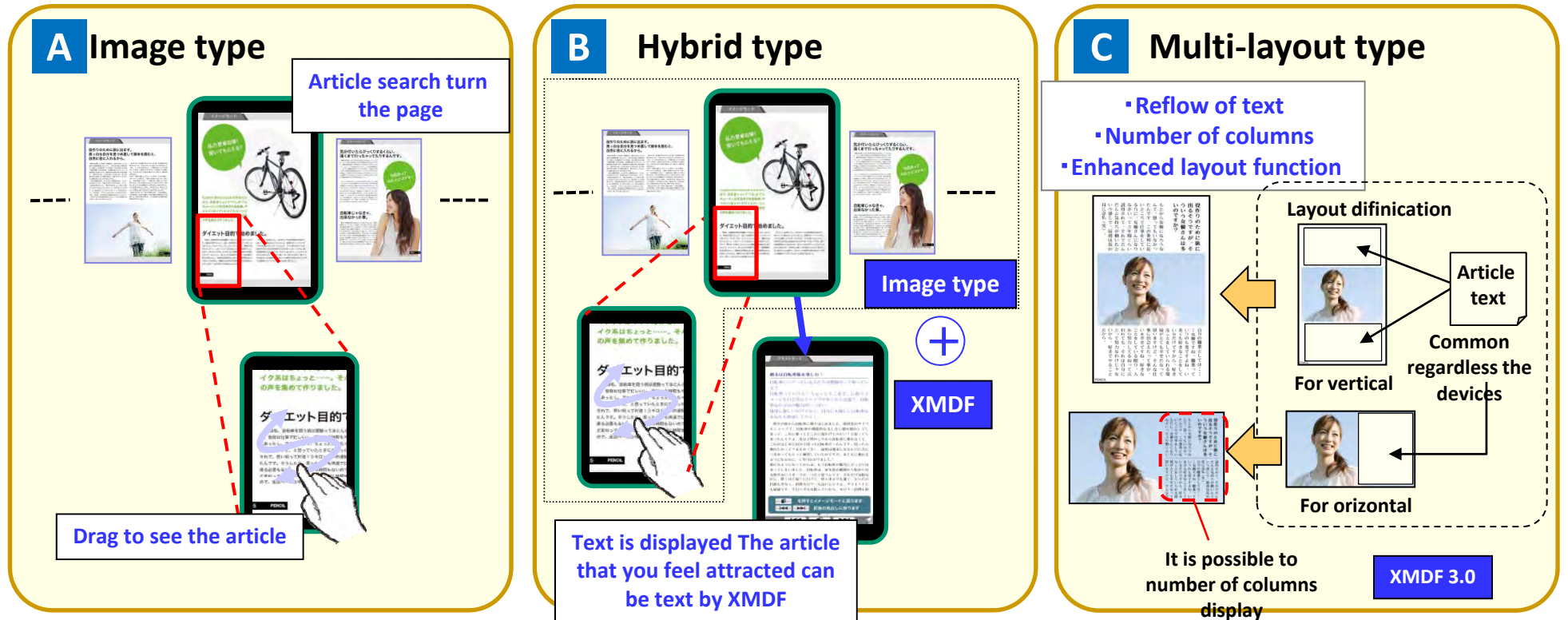


Also you can easily jump to the Table of Contents

•Other attractive function

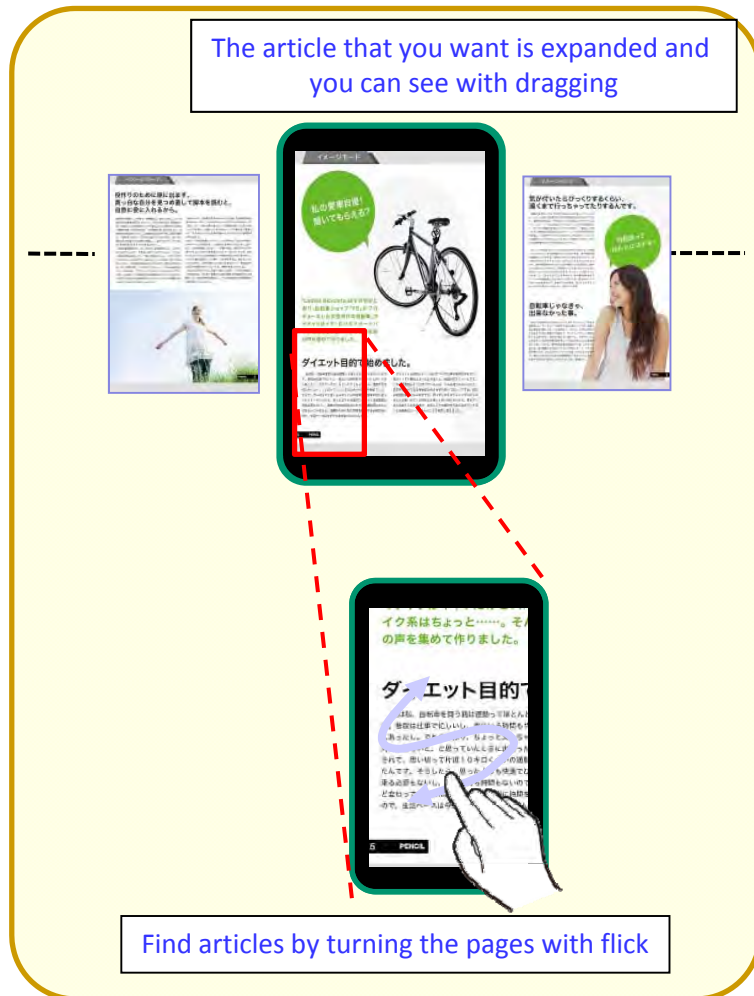
- Text research
- Book mark function
- Thumbnail display
- Vertical / horizontal switch

Next generation XMDF – three types of contents



| Type | Features |
|-------------------|--|
| Image type | Full page image. Pinch-zoom in / Pinch-zoom out, scroll by dragging viewed |
| Hybrid type | Coexistence type of image and text. To view by image and when reader would like to read an article they can see by text too. When they use text they can mark and use dictionary. |
| Multi-layout type | It is adopted from XMDF3.0 (New ver.). The magazine can be displayed by the best layout matched to the device screen size. Reader can choose font size and display mode that they want |

Image type

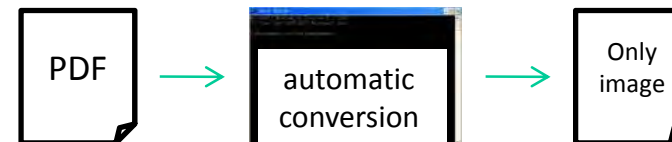


About image type

- Consists of a high-resolution images of all pages
- Method of read
- Article Search page flip turning read. Thumbnail / can find the table of contents.
- To expand the article to read, and read with the drag.
- It opens wide-screen at the horizontal position, and it open one side at the vertical position. (It is also possible to make it to an one side display at horizontal possession)
- It is possible to control a position at the right binding or the left binding.

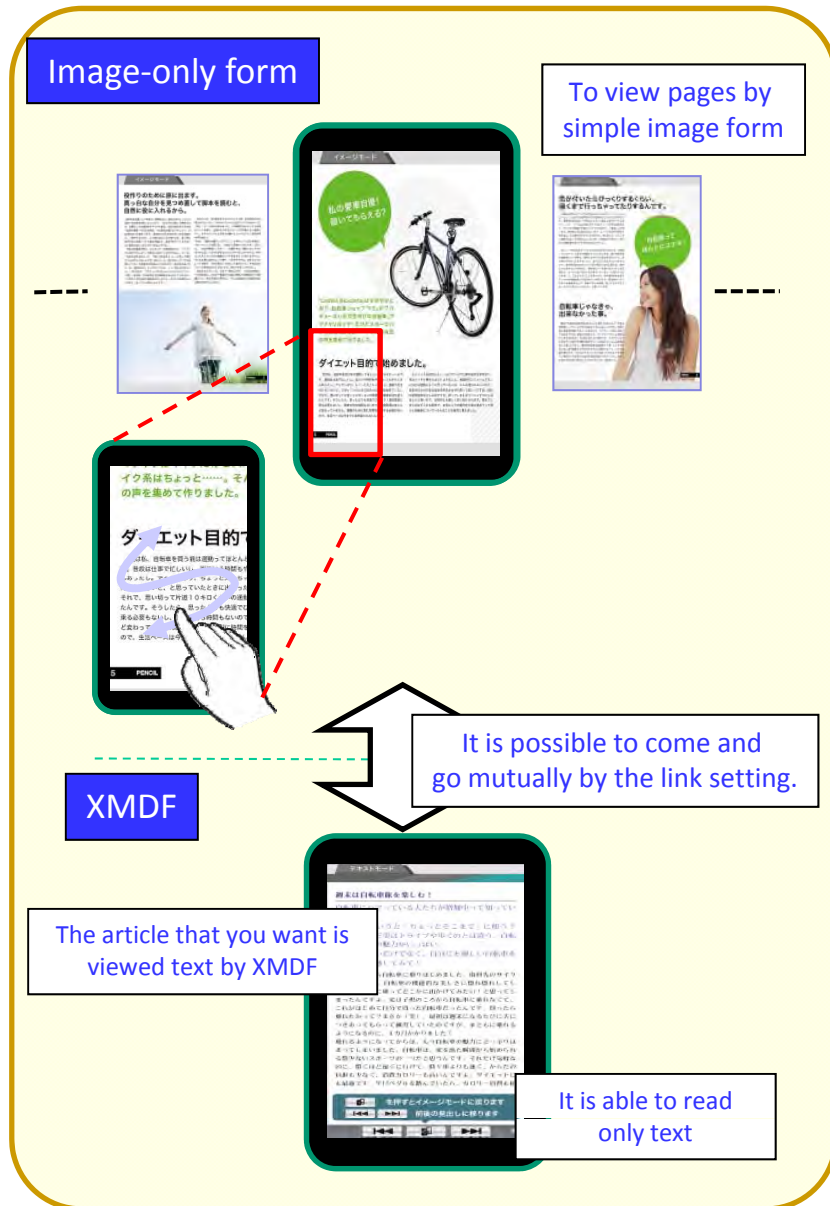
About creation tool

- The Converter that converted from PDF file automatically



- It works by Dos Prompt of Windows PC (XP/Vista/7)

Hybrid type



About hybrid type

- Coexistence type of page image and text. Page image is displayed as simple image data while text is displayed in XMDF.
- It is possible to switch between image and text by the link setting.

About creation tool

Automatic conversion

- The Converter that converted from PDF file and text original data automatically
- It works by Dos Prompt of Windows PC (XP/Vista/7)



- Text original data correspond Plain, Text and so on.
- It is possible to output only image form

Multi layout type

Outline of Multi layout type

▪ Extended version of exiting X MDF.

Main extensions are -

| | |
|--|--|
| Complex layout | Express complex layouts following layouts in contents. |
| Automatically resize the number of column | Automatically resize the number of column as the number of characters in one line. |
| High functionalization of character configurations | High functionalization of character/rubi/character gap/line space/blank. |

Creation tools

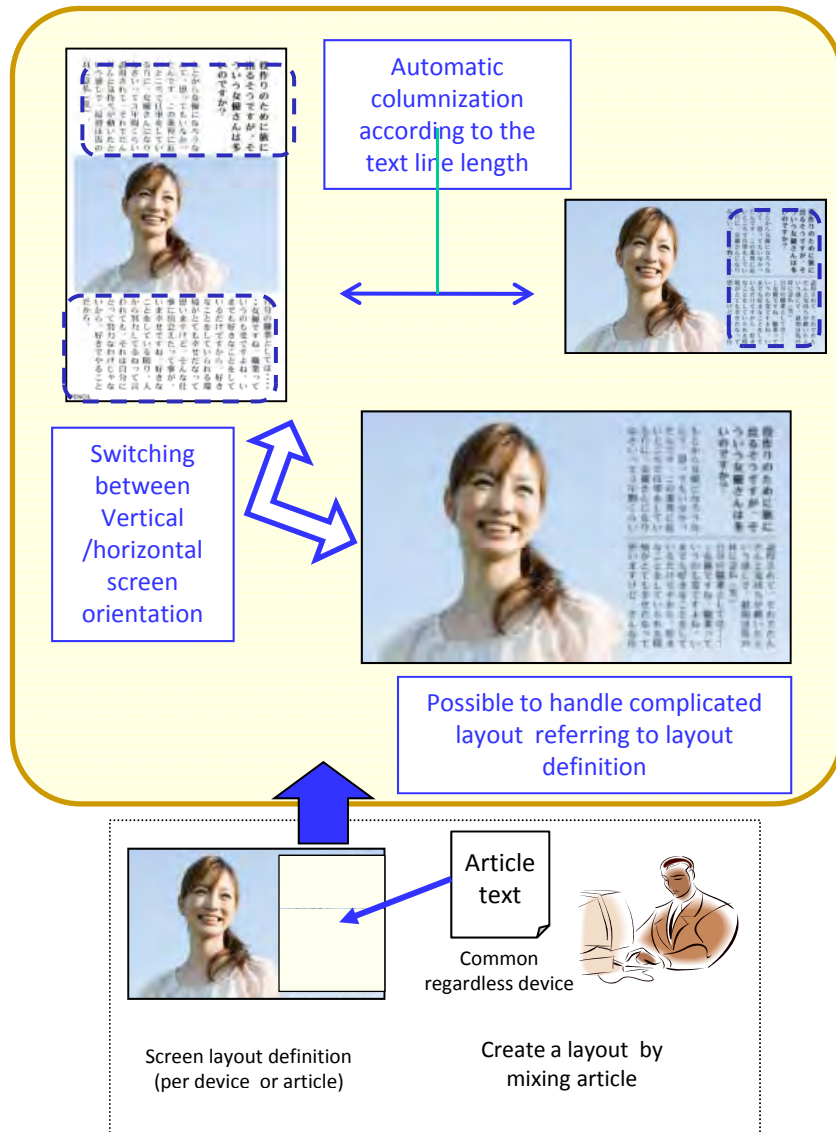
(1) Converter

- Automated conversion from X MDF format.
- DOS prompt of WindowsPC(XP/Vista/Server2003)

(2) X MDF builder

- Authoring tools based on GUI.

| | |
|---|--|
| Reducing the time for generating contents | Cut the editing on the builder <ul style="list-style-type: none"> ▪ Import indesign IDML file ▪ Edit title and text such as style to sentence structure ▪ Ruby / Gaiji /Auto-tagging such as tate-chu-yoko/Replace function |
| Layout editing | The function that can edit layout and it is features of ver. 3.0 |
| OSMU (One-source, Multi-use) | Keep the layout to separate the article text. Inline images, resizing of layout for other screen sizes |

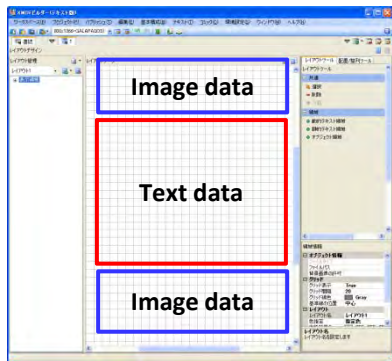


Next generation XMDF

- Keeps layout while enabling the adjustment of character size.
- Powers of expression combined with the multi-media capabilities.



Layout Pattern



Authoring Tool



| | |
|--|---|
| 10.8 Vertical Hold – Vertical Typing Layout | 5.5 Vertical View – Vertical Typing Layout |
| 10.8 Vertical Hold – Horizontal Typing Layout | 5.5 Vertical Hold – Horizontal Typing Layout |
| 10.8 Horizontal Hold – Vertical Typing Layout | 5.5 Horizontal Hold – Vertical Typing Layout |
| 10.8 Horizontal Hold – Horizontal Typing Layout | 10.8 Horizontal Hold – Horizontal Typing Layout |
| Contents Data (Texts, Images) * Common in all layouts | |

Contents file

* Information is assembled and encrypted

A viewer selects an optimum layout pattern and displays the result



5.5 inch GALAPAGOS vertical hold – vertical type view (sample image)

Viewing Selection using Re-Flow and Layout Pattern

Layout Change

Select the optimal layout based on the viewing size, device holding position, etc

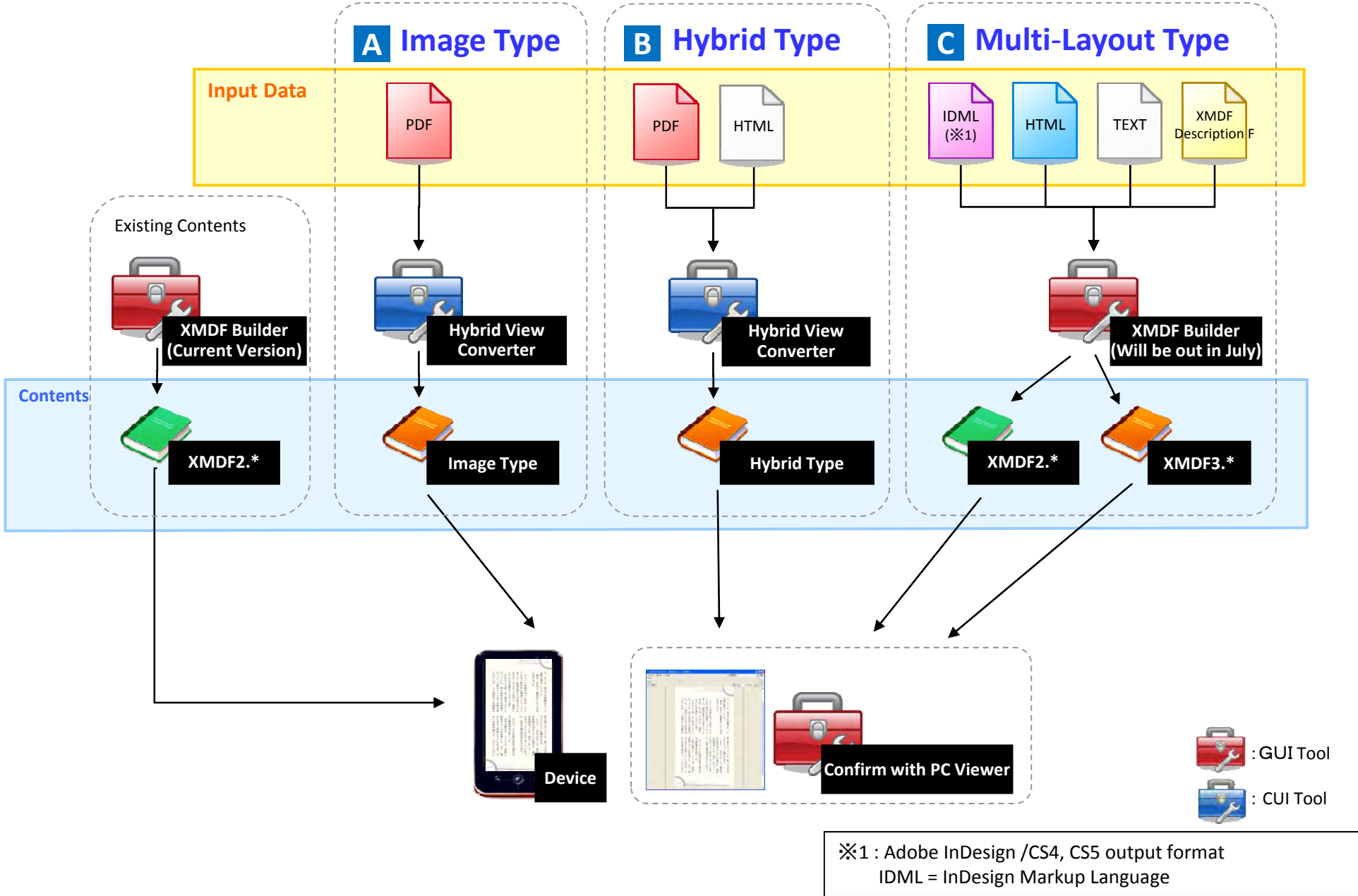
Re-Flow

Layout the characters in viewer optimal way using the selected character size while keeping the overall layout

Article text

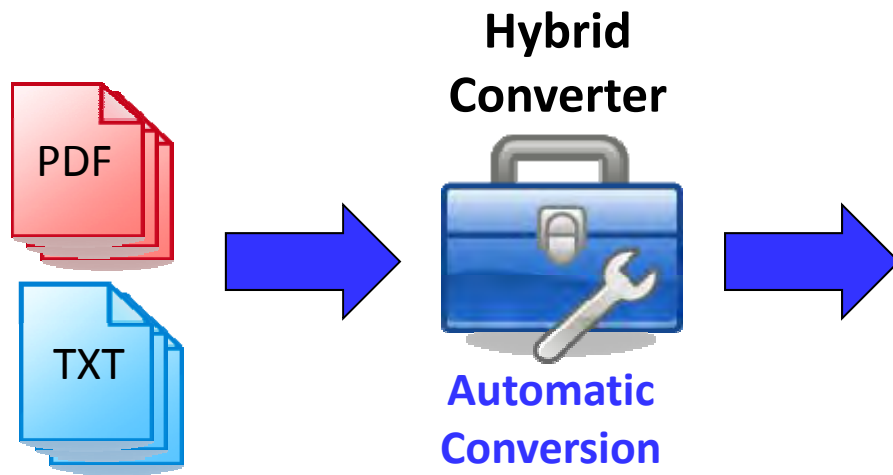


Overview of the Authoring Tool



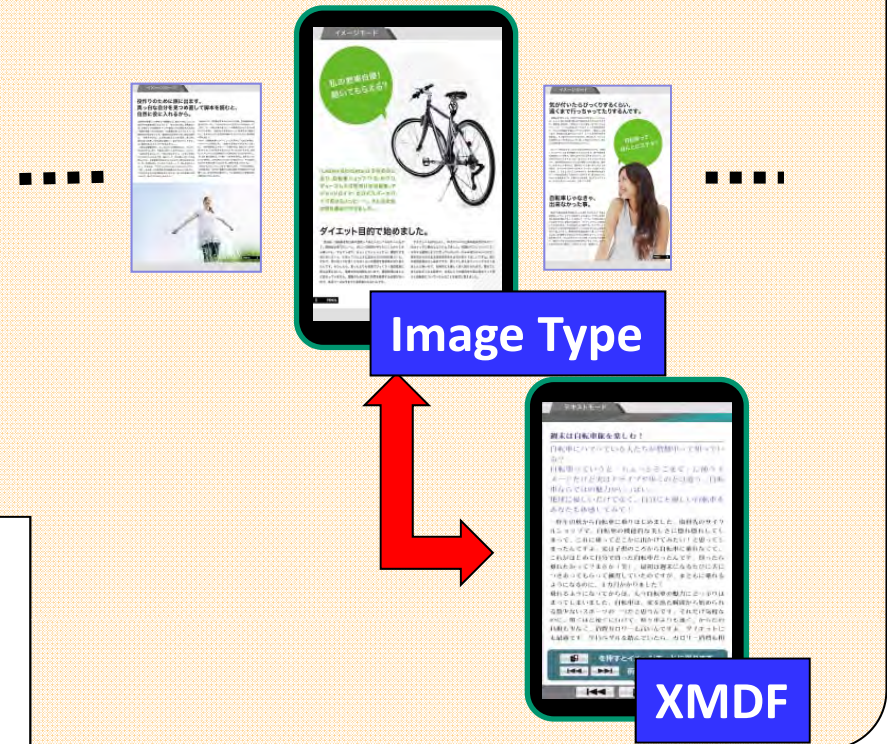
Hybrid Converter

“Hybrid Converter” is a tool to create Image Type and Hybrid Type Contents



Create the Image(-only) Type and Hybrid Type Contents easily by inputting the PDF (Embedded Font) or Text Data

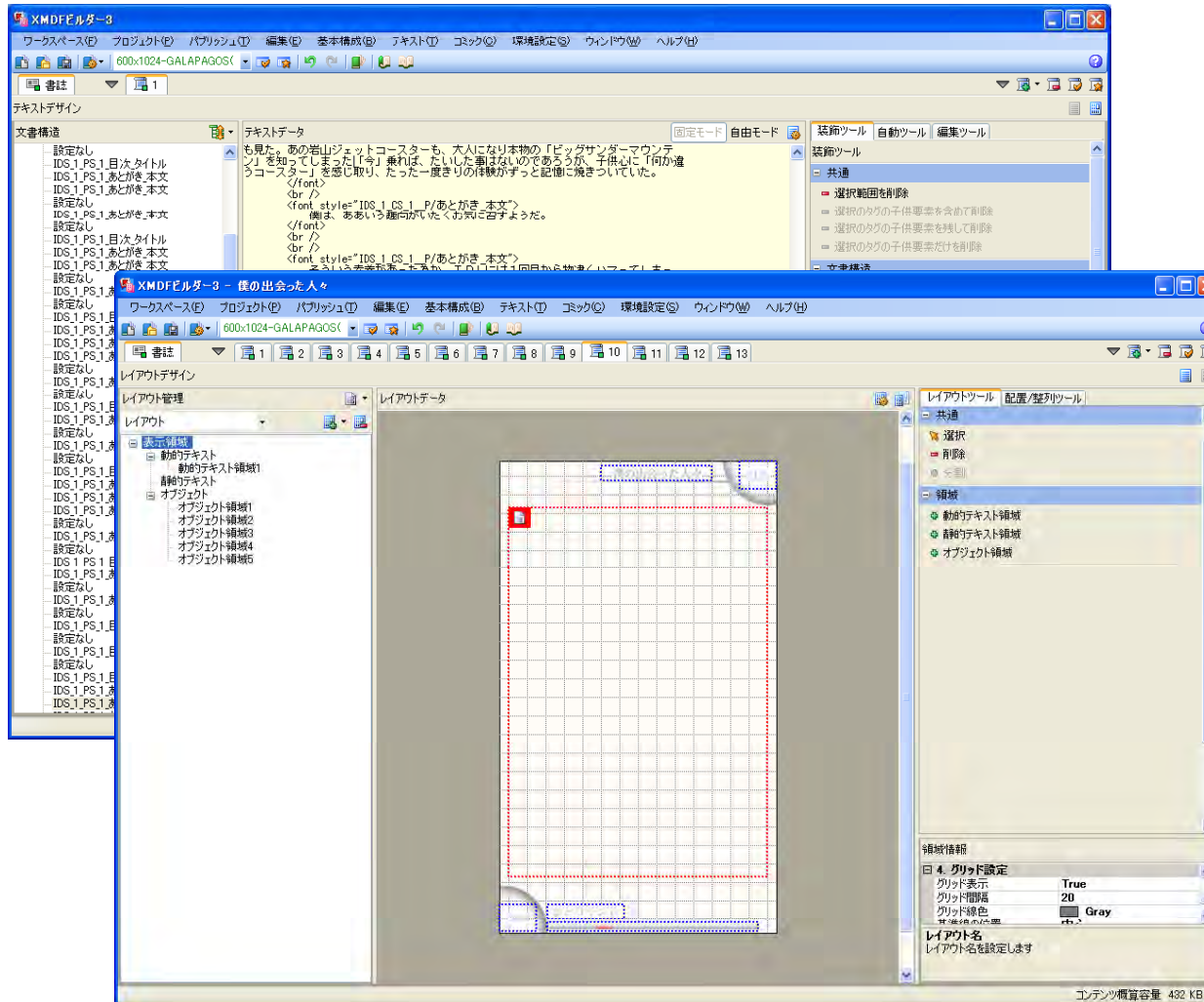
Image Type / Hybrid Type Contents



* Text Data is not necessary for the Image-only Type

X MDF Builder

“X MDF Builder” is a Tool to create Multi-Layout Type (X MDF3.0) Contents



Characteristics 1 Efficient Contents Creation

- Can input data such as InDesign IDML File, Test File, HTML File, etc
- The automatic generation of external characters, Adobe Japan 1-6 character external characters do not need to create
- Efficient conversion using templates

Characteristics 2 Creates Multiple Interface

- Complicated page layout can be created using Page Layout Editing Function
- Multimedia contents using movie, audio, animation can be created

Characteristics 3 Supports multiple devices and services

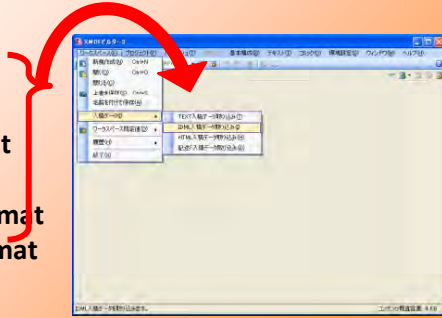
- Can output to X MDF2.0 contents that can be utilized in other vendor services
- Can create multiple layouts to fit to multiple device window

Editing Flow using X MDF Builder

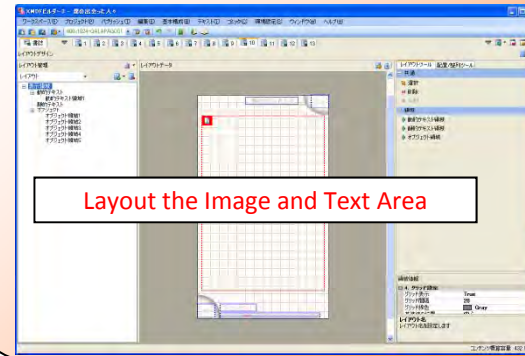
Input the Material Data

[Input Format]

- Adobe InDesign
- CS4/CS5 : IDML Format
- Plain Text
- HTML Format, TTX Format
- X MDF Description Format



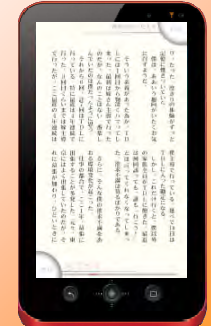
Configure the Page Layout



Layout the Image and Text Area

Contents Output

Confirm in the Viewer, and edit the layout if necessary



Input Material

Edit the Body Text

Edit the Page Layout

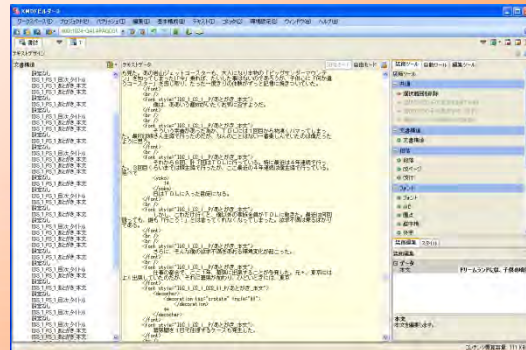
Confirm the output

Publish

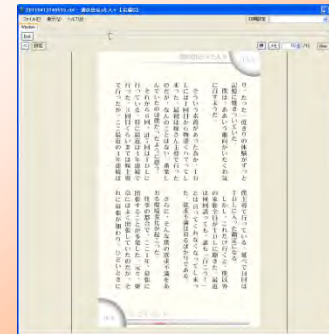
Edit the Body Text

[Main Edit Items]

- Character Decoration
- Specify Section
- Insert Images
- Prohibited Rules
- Events

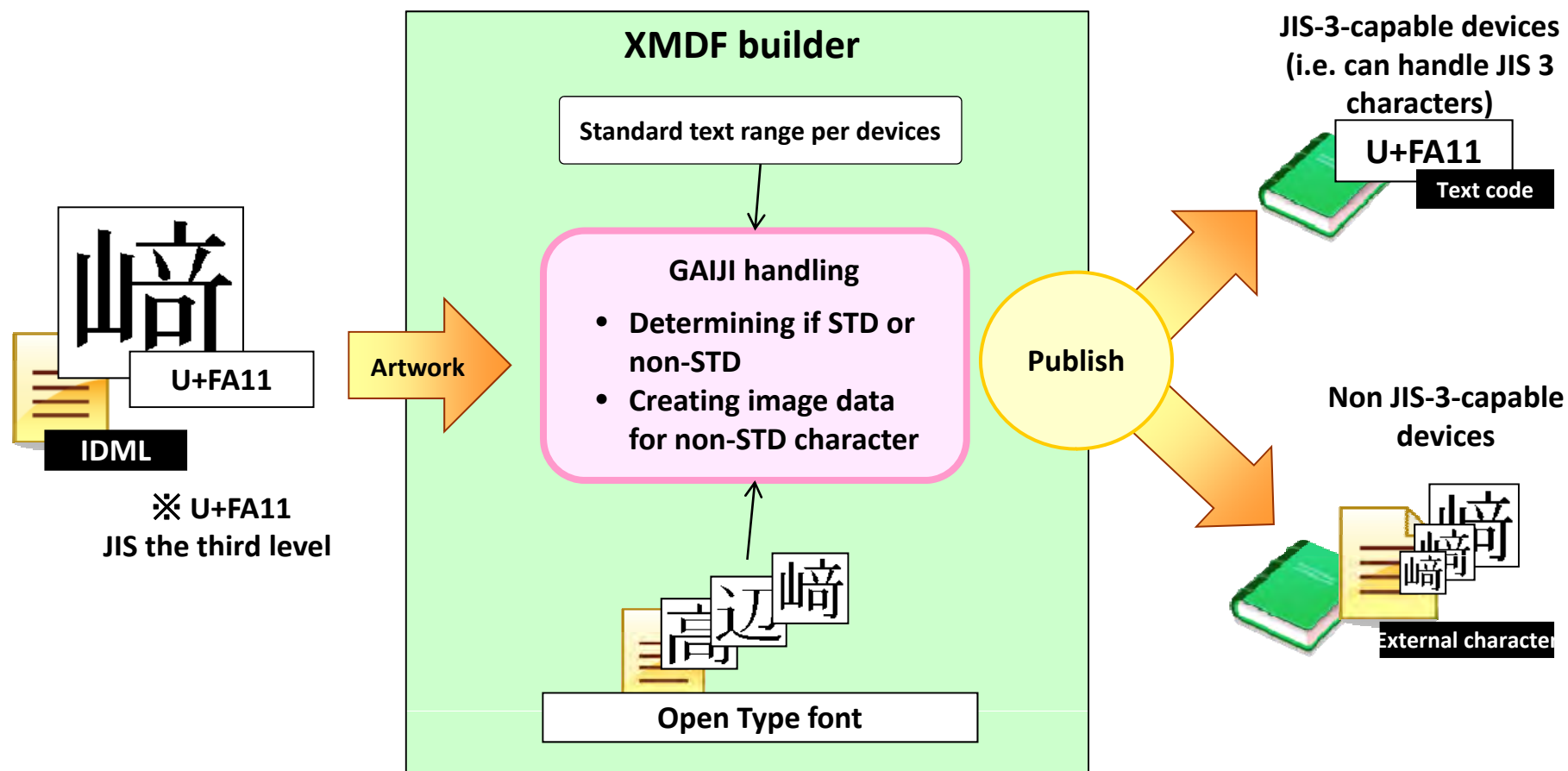


Confirm the output in PC



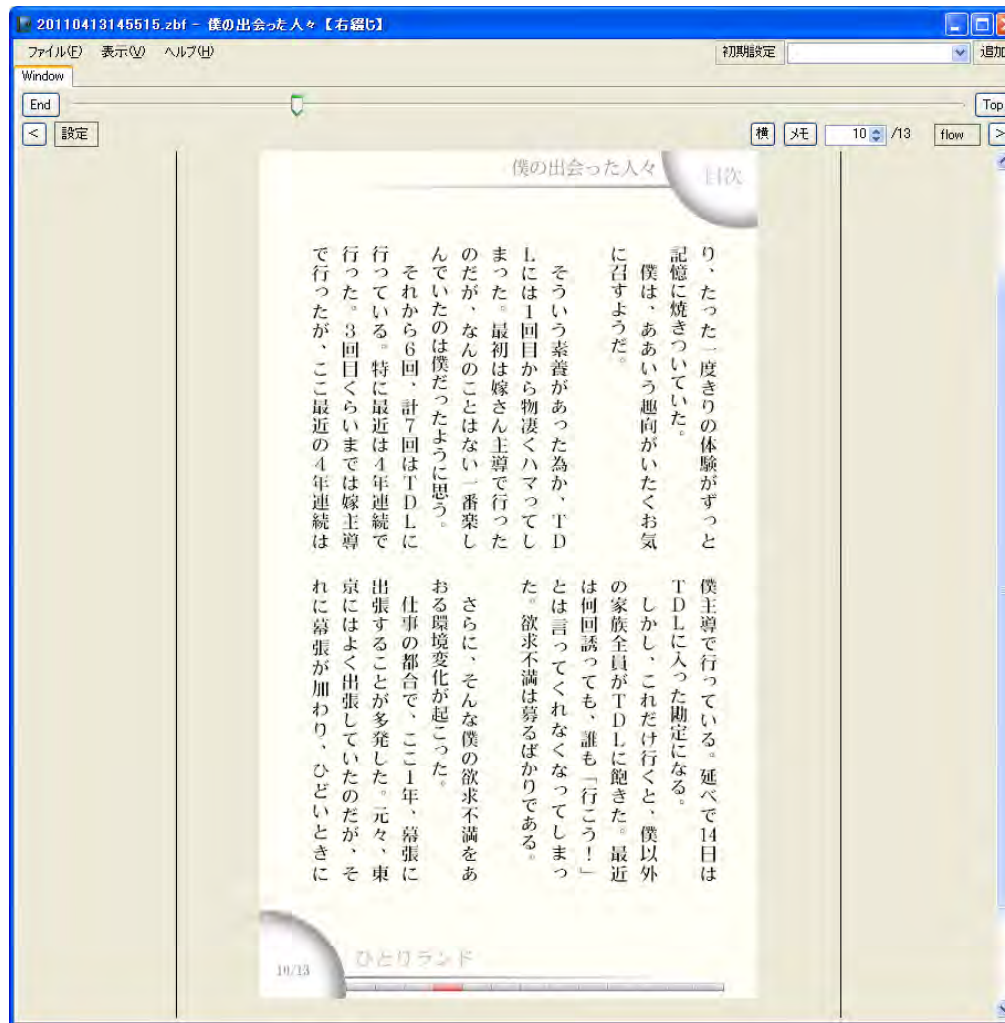
Automatic generation of Gaiji characters

- Generating image data for characters not in the standard characters (gaiji) and embedding it in the content
- Applicable to Adobe Japan 1.6 characters
- No need to take care of gaiji characters when editing from IDML (InDesign XML)



PC Viewer for proofreading

A tool for proofreading the contents on PC created by XMDF Builder and Hybrid Converter



Characteristic

- Allows the user to put instructions in the contents
- Allows the user to check the output switching between different display sizes

May 30 Tokyo Forum
“Future Japanese Layout in CSS”
Session Material

Future Japanese Layout in CSS

-Electronic Book Technology Vendors' and
Business Operators' Points of View -

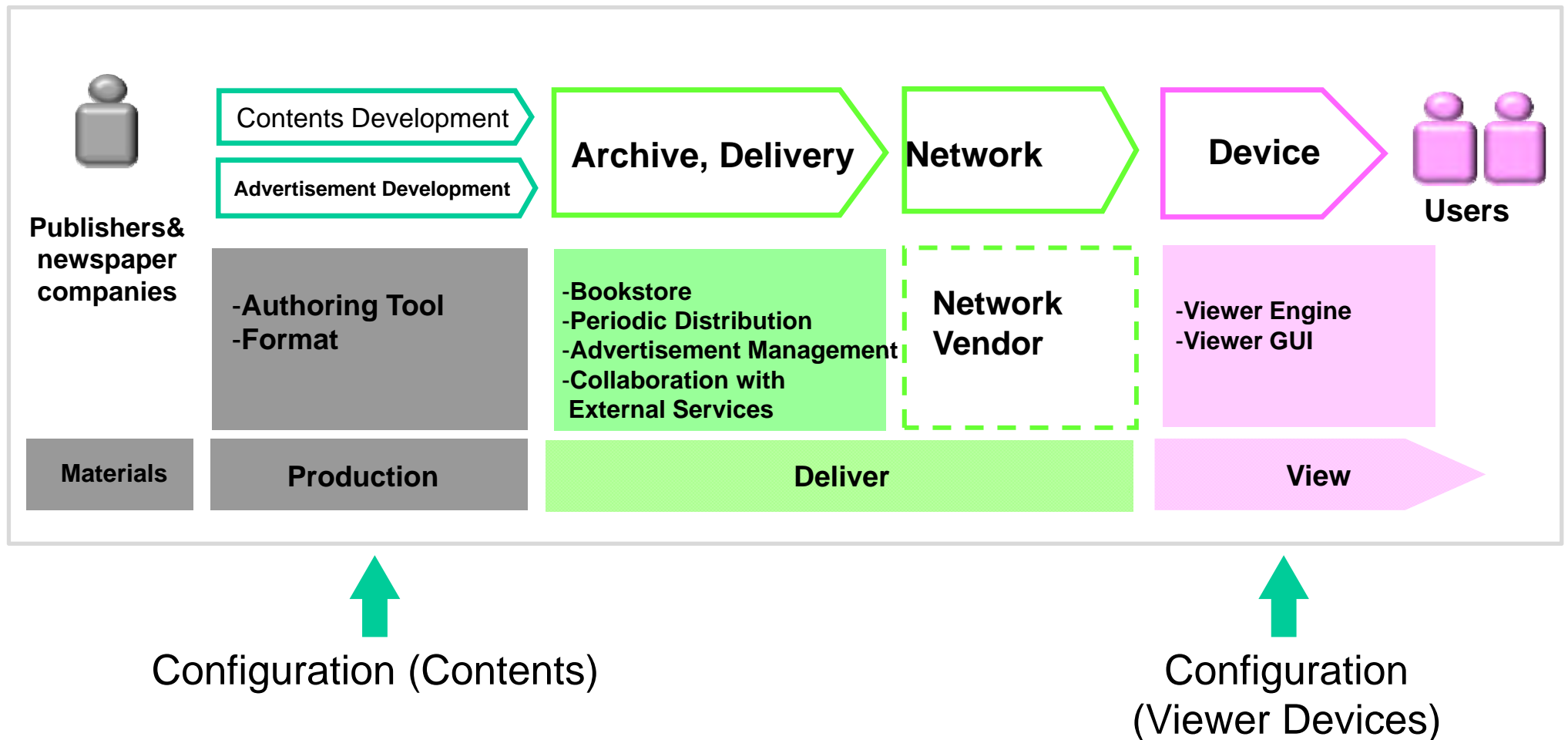
May 30, 2011

Hisashi Saiga

Communication Systems Group, Sharp Corporation

Electronic Book Value Chain

Taking the perspective of the whole value chain is important when discussing e-book technologies.



Viewing Configuration

- Configuration using descriptions in the contents (reflecting the content providers' intents)
- Configuration according to the viewer's initial settings
- Configuration by the user

The question: "Who will configure?"

“Who will Configure” -1

Specifying “Who will Configure”

X MDF Example
 ... Possible
 × ... Not allowed
 - ... Not applicable

| Item | Configured Value | Configure in the Contents | Configure by Users | Memo | Related CSS Property (Value) |
|------------------------------|------------------|---------------------------|--------------------|--|--|
| Text direction | Not specified | - | ○ | Displayed according to the viewer's configuration | writing-mode (horizontal-tb/vertical-rl) |
| | Set the value | ○ | ○ | | |
| | Enforce | ○ | × | | |
| Text Color, Background Color | Not specified | - | ○ | Displayed according to the viewer's configuration | color/background-color |
| | Set the value | ○ | × | User configuration not allowed due to legibility concern caused by text/BG color combination | |

“Who will Configure” -2

■ X MDF Example (Cont.) ○...Possible - ...Does not Correspond ×...Impossible

| Item | Configured Value | Configure in the Contents | Configure by Users | Memo | Related CSS Property (Value) |
|---|------------------|---------------------------|--------------------|---|------------------------------|
| Prohibited Rules(ejection, dangling wrap) | Target Character | ○ | × | | line-break |
| | Not specified | - | × | | |
| Display the RUBI ON/OFF | Not specified | - | ○ | Display according to the viewer's configuration | Viewer's behavior |
| | Specified | ○ | ○ | | |
| | Enforced | ○ | × | | |

Contents Providers' Intents and usability

Need to define the specifications that meets the followings

- Contents providers' intents
- Usability (Easy to read, accessibility) -> Users should be able to configure

* The situation might change with the layout complexity of e-books increasing and making such user-side configuration awkward.



* Example: Should we enable the users to switch text orientation (i.e. horizontal <-> vertical)? Who will bear the proofreading cost to prepare for that?

Uniformity of viewer behaviour

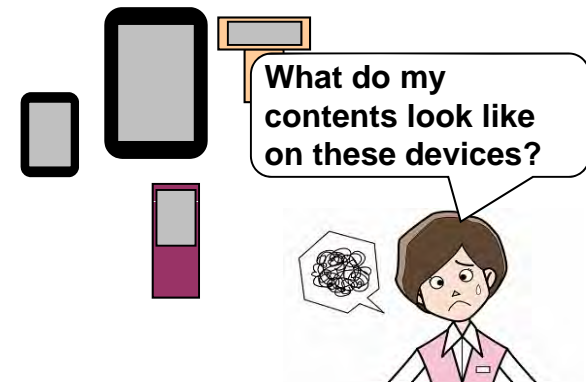
Currently, the uniformity in viewer behavior is somewhat guaranteed across different platforms since technology vendors have been handling implementation work of *their* technologies.



As the vendors participating in the implementation work become more diverse, such uniformity will likely be lost and the same content might look different on each platform.



The content business will be affected by this lack of uniformity in viewer behavior.



Possible solution: Viewer implementation guidelines

Future direction -1

As the scope of e-contents is expanding, the layout data is gaining more importance.

Material + Logical structure

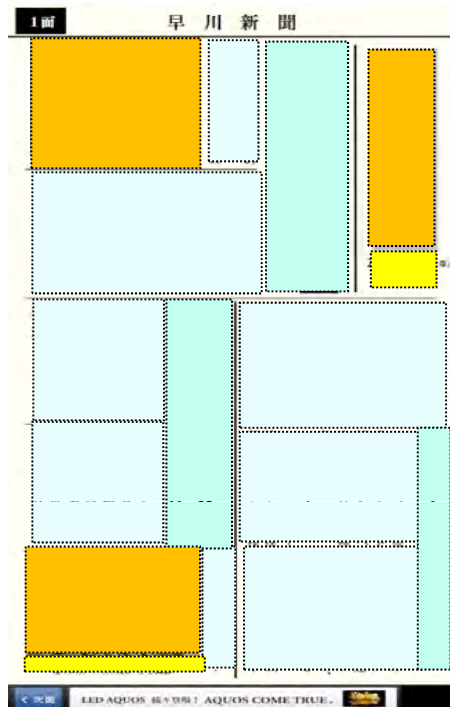
Layout data

Viewer output



- material (text data, etc.)
- logical structure

Display (Environment) - dependent



- Position of text/image data
- text attributes (character size, etc.)

Environment-dependent

Future direction -2

Reproducing the ease and touch of the paper contents in digital form is becoming reality as the display technology advances.



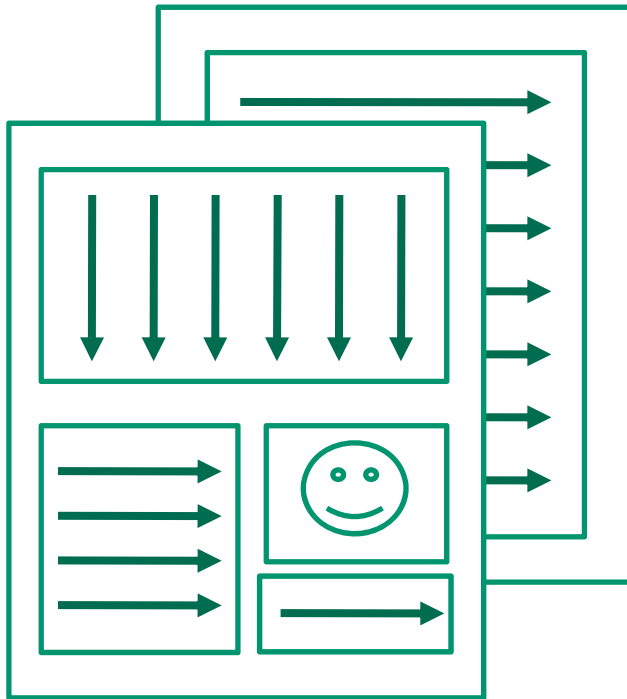
Page type contents gaining popularity, combining the ease of use of the paper form with the advantage of digital.



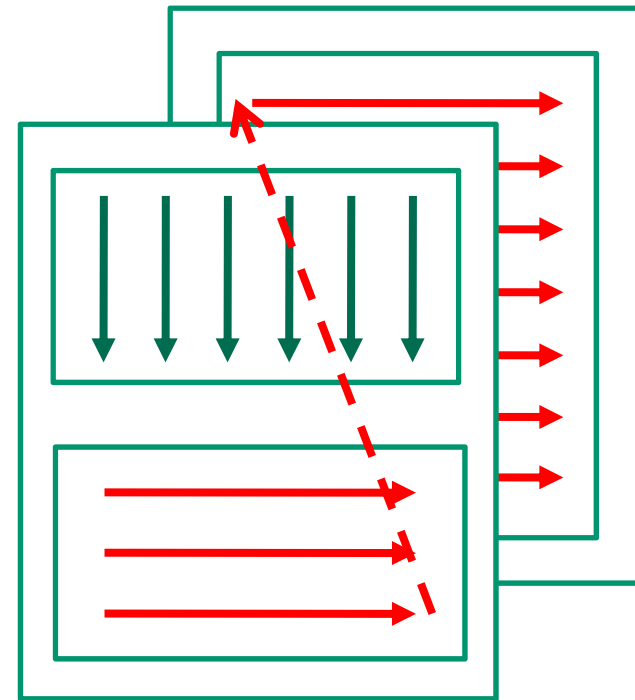
Style data with the concept of “page” will be effective, which will be chosen according to the device specifications and screen sizes.

Future direction -3

Example)



- Different text orientations on a single page
- Different text orientations between pages



- Reflowing across pages

Summary

- Perspective of the whole value chain is important when discussing e-book technologies
- Uniformity of the display fades distributed mainly by the implementation of the viewer -> Need implementation Guidelines?
- Style data utilizing the concept of page layout becomes useful with the evolution of e-books.

SHARP