

e-Reader Industry Trend & Market Forecast

2010

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2. e-Book Industry Trend

2-1. Definition of e-Book

The definition of e-Book varies slightly by scholar and related institution, but it commonly means a book stored in data. e-Book must have electronic medium-based contents rather than printed contents. It must be visually offered to readers regardless the type such as CD-ROM or Internet.

In other words, e-Book refers to books that exist in computer files and is defined as a digital publication which can be downloaded to PC and can be read by web browser, PC, or portable terminal.

In 2000s, limited e-books were available by inserting USBs in rustic terminals using e-paper display. Such trend has changed to e-books, e-magazines, and e-newspapers that can be downloaded with WiFi infrastructure and viewed on e-Readers.

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3. e-Reader Industry Trend

3-1. Definition and Scope of e-Reader

The definition of e-Reader is a terminal which enables e-book function support. An e-reader is a terminal for exclusive e-book use with primary “book reading” function.

4. e-Paper Display Technology and Maker Trend

The e-book market initially expanded as E-Ink-based e-paper display technology R&D was commercialized. Most e-readers including Amazon's Kindle, Sony's Reader, Barnes and Noble's Nook, and iRiver's Story apply the E-Ink e-paper display technology.

The e-paper display (electronic paper) is a type of reflective display which maintains images even when the power is off and does not require a self light source like the conventional paper. Most e-paper displays have superior viewing angle and resolution compared to the conventional LCD. They do not need BLU and can be realized on any substrate such as glass, plastic, metal, and paper. The process is simple and a mass production is possible with low cost through roll-to-roll process. In addition, they consume power only when changing the screen. Hence, they realize low power consumption and maintain long battery life.

The e-paper display is a new display to replace the conventional paper prints. It can be applied in not only e-newspaper, e-magazine, and e-book, but also in public displays like sign board, advertisement board, and bulletin board as well as mobile communication devices like mobile phone and PDA.

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We will take a closer look at e-paper display technologies applicable in e-reader and related makers.

5. e-Reader Panel Maker Trend

5-4. PVI

PVI (Prime View International) is a TFT-LCD panel maker established in Taiwan in 1992. The company has entered the e-paper business in 2005 through collaboration with Philips. As a result, PVI has developed LCD and electrophoretic display-based reflective display technology called MagicMirror®.

Flexible e-papers use processes developed by Philips and enable an active drive applied with bottom TFT.

In addition, PVI manufactures displays by using EPLaR (Electronics on Plastic by Laser Release) technology which separates plastic substrates from glass substrates through laser process.

PVI's active drive e-paper has bistability with high reflectivity. It also has excellent outdoor readability and converts 700 pages with a single charge. EPLaR display is currently available in 1.9", 5", 6", and 9.7".

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Figure. PVI EPLaR Display

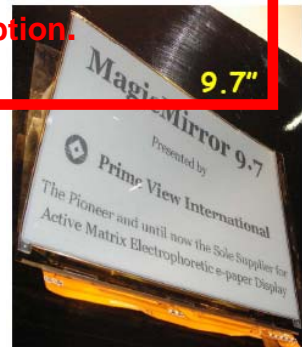
This sample is designed to help understand the composition of the report and the type of description.



1.9"



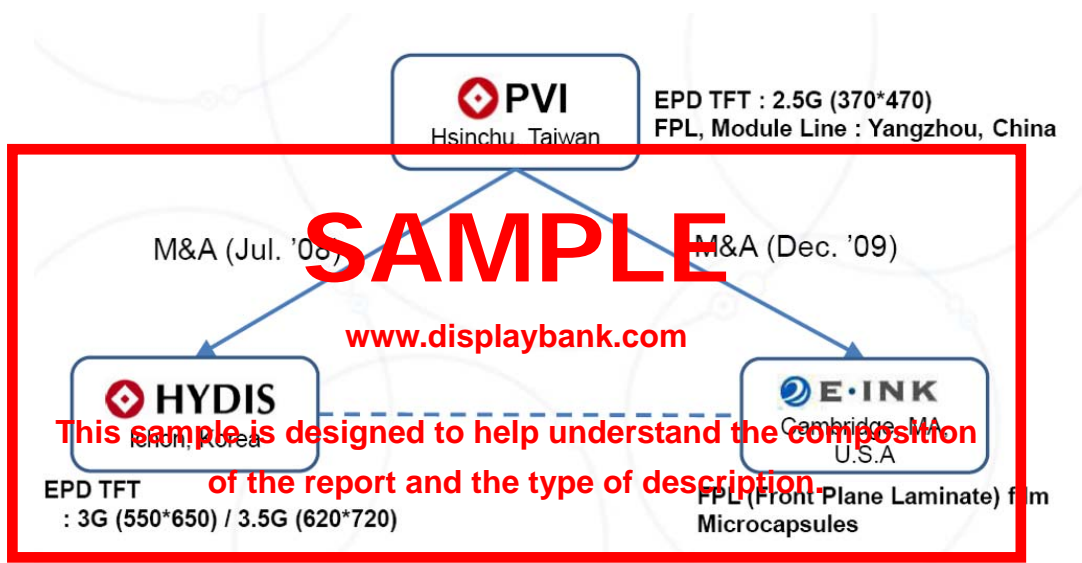
6"



9.7"

(Source: PVI)

Figure. M&A among PVI, HYDIS, E-Ink



(Source: PVI)

6. e-Reader Trend of Major Makers

6-1. Amazon Kindle

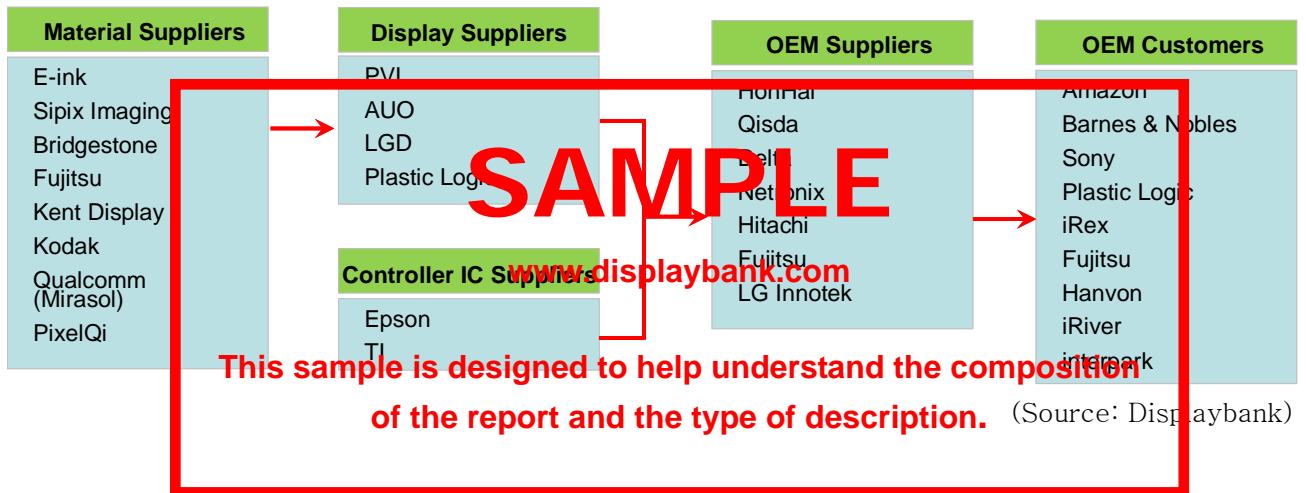
Figure. Amazon Kindle e-Reader Specification Comparison

Brandname	Amazon Kindle			
Model	Kindle	Kindle 2	Kindle 3G+WiFi	Kindle DX Graphite
Manufacturer	Hon Hai Precision Industries	Hon Hai Precision Industries	Hon Hai Precision Industries	Foxconn
Picture				
Display Size	6 inch	6 inch	6 inch	9.7 inch
Resolution				825 x 1200 pixels, 150 ppi
Dimensions	190 x 135 x 18 mm (7.5" x 5.3" x 0.7")	203 x 135 x 9 mm (8" x 5.3" x .36")	190 x 122 x 8.5 mm (7.5" x 4.8" x 0.34")	264 x 183 x 10 mm (10.4" x 7.2" x 0.38")
Weight	292g (10.3oz)	289g (10.2oz)	247g (8.7oz)	535g (18.9oz)
Screen Technology	E Ink Vizplex		E Ink Pearl	E Ink Pearl
Grey Levels	4	16	16	16
Touch Screen	no	no	no	no
Power	Li-ion 1530mAh	Li-ion 1530mAh	Li-Polymer 1750mAh	Li-ion 1530mAh
Battery Life	with EVDO: "2 days", without: "up to a week"	with 3G: "4 days", without: "up to 5 weeks"	with 3G: "1 days (with WiFi: 3 weeks)", without: "1 month"	with 3G: "4 days", without: "up to two weeks"
OS	Linux 2.6.	Linux 2.6.24	Linux 2.6.26	Linux
Expansion Slots	SD/MMC	none	none	none
Supported Formats	Kindle (AZW and TOPAZ), PRC/MOBI (non DRM), TXT, MP3, Audible (format 4, Audible Enhanced (AAX)), MP3;	Kindle (AZW and TOPAZ), PRC/MOBI (non DRM), PDF (non DRM), TXT, MP3, Audible (format 4, Audible Enhanced (AAX)), MP3;	Kindle (AZW), PRC/MOBI (non DRM), PDF (non DRM), HTML, DOC, TXT, MP3, Audible (format 4, Audible Enhanced (AAX)), JPEG, GIF, PNG;	Kindle (AZW and TOPAZ), PRC/MOBI (non DRM), PDF (non DRM), TXT, Audible (format 4, Audible Enhanced (AAX)), MP3;
Supported DRM Formats	AZW and TOPAZ		AZW and TOPAZ (Kindle only)	AZW and TOPAZ (USA only)
Content Partners	Amazon		WebKit web browser & MobiPocket Java Reader	

7. e-Reader Analysis and Comparison

7-2. e-Reader Supply Chain

Figure. e-Reader Supply Chain



8. e-Reader Market Forecast

Since the launch of Kindle, expectations on e-reader market are rising.

The e-reader demand market is divided into B2C market and B2B market.

The B2C market is a general consumer market which requires additional functions on top of the “book reading” function due to advancement of multi-purpose multi-media devices such as smartphone, tablet, and netbook. Therefore, the market is rather limited as it competes with multi-media devices.

On the other hand, the B2B market is expected to expand in the future as it can save purchase and management costs as well as spaces for book display when corporations or institutions apply the e-Reader. EPD-based e-reader is supplied at low cost while being light and sturdy that it is suitable for children and students. It may be used at schools replacing textbooks. It may also be conveniently used in libraries.

The e-reader is easily maintained and consumes small management cost as it is used to replace books.

Moreover, the e-reader reduces other maintenance costs and has various utility values.

Therefore, the e-reader market may further expand if it targets B2B market.

Then, what types of e-reader B2B markets are there

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Next, we will divide the B2B markets by use and forecast the e-reader market.

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8-2. e-Reader Market Forecast by Application

Figure. Forecast by e-Reader Application (Unit Based)

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Table. Forecast by e-Reader Application (Unit Based)

(M Units)

Market	Classification	Use	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
B2B	Educational	e-textbook											
	Library	Display, rent											
	e-Newspaper/ e-Magazine	e-newspaper, e-magazine											
	Others	e-document, e-medical chart, e-menu											
B2C	Personal	Personal reading											
Total													

8-3. e-Reader Market Forecast by Market

Table. Forecast by e-Reader Market (Unit Based)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
B2B											
B2C											
Total											

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8-4. e-Reader Market Forecast by Technology

Table. Forecast by e-Reader Technology (Unit Based)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Electrochromic											
Electrophoretic											
Electrowetting											
LCD											
MEMS											
Others											
Total											

(M Units)

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