

# Print: **seen!**

**BOOK**

**1**

## lean & green

*connection of competence*



**PrintCity**



# PRINT!

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PrintCity is a Strategic Alliance that connects worldwide expertise from independent companies in the graphic arts industry. Members work together in partnerships within a complete workflow — from prepress to press to postpress — across the packaging, commercial and publishing sectors.

**BOOK**

**PRINT:**  
**seen!**  
lean & green

**1**

# Welcome to

## PRINT: **seen!** lean & green

PrintCity's view of the future of print is that it will be an evolving mix of multiple scenarios for different market segments, economies and cultures. However, all of them will have a common need for a 2-part strategy to optimise their success. Firstly, print must be **seen**, it needs to stand in its own right and be valued as a functional media. This needs to be underpinned with a combined **lean & green** manufacturing strategy to ensure its profitability and sustainability.

To reflect this dual strategy we have chosen an innovative 2-in-1 format that combines two related books into a single revolving back-to-back book.

This book reflects the input from PrintCity members and associates, the Stuttgart HdM Media University, FIPP, University of Swansea, and Print Power. We would like to express our appreciation at their combined 'connection of competence' contributions.

### PRINT: **seen!**

**Print** retains many unique communication attributes that assure its future will be seen, valued and used within the media mix. It is not so much a choice between e-media or print, but rather what is their best combination? Print that is **seen** attracts more sales attention to the product and more value to the printer, publisher and packager. **Value Added Printing** and **Packaging** is the only medium that offers an endless combination of colours, surface treatments, shapes, substrates and smells that stimulate our senses to create emotional value and response. Smart printing technologies are further increasing this value proposition.

BOOK

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## Contents

# BOOK

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# BOOK

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**Structural change and economic pressures have impacted heavily on the print-media landscape, particularly in some segments of mature markets. Nevertheless, in developing countries and in other areas of mature markets print is generally robust. Global print volumes are stabilising and the ratio between print and online media is finding a balance. Print retains many unique communication attributes that assure its future within the media mix. These are strengthened by Smart Technologies that bridge print to e-media.**

The industry's 'right-sizing' actions are beginning to respond to the new market dynamics. This does not mean a return to the "glory days" of the late 20th century, or that the adjustment to new market dimensions is complete, but there are grounds for some cautious optimism. This book's cross-industry evaluation indicates that print has a mix of multiple futures that will be variable for different market segments, economies and cultures.

## Mega trends

# Executive Summary

## WHAT TYPE OF WORLD WILL THE PRINT, PACKAGING AND PAPER INDUSTRY BE OPERATING IN?

### 1. Growing population

In 2011 the planet hosted 7 billion people, this is expected to rise to around 9 billion by 2050. There is a global divergence in population trends that is the inverse of economic patterns — shrinking populations in mature markets, with moderate growth in developing economies, and high growth in poor economies.

### 2. Need to nourish everyone

All non-food crops will be under increasing pressure and genetically modified crops can only help so much. Improved output requires significant changes to farming practices and minimising food waste in fields, transport and storage. Water is a crucial resource under increasing pressure, today 80% of the world's water is neither treated or collected.

### 3. Sustainable environment

There is intensified global competition for decreasing stocks of natural resources. Land degradation increases with urbanisation; and arable land becomes increasingly scarce as food production competes with commodities and biofuels. The consequences of climate change and pollution will increasingly impact on the standard and cost of living everywhere, ultimately driving more convergence of environmental regulation and governance. Sustainability will be a key business performance attribute.

### 4. Sustainable economics

Sustainable global economic and environmental solutions are essential to survival and wellbeing. There will be a continuing economic re-balance between developed and developing countries. Alternatives to the pure consumer society will be facilitated by the Internet to encourage renewed co-operatives, collaborative consumption, and consumer associations.

### 5. Increasing urbanisation and literacy

The world population became over 50% urbanised in 2011. About 83% of adults worldwide are literate (UNESCO). The far-reaching benefits of literacy are better health, social equality, and prosperity.

### 6. Accelerating technology change

Smart devices (phones, tablets and apps) are becoming a mass consumer product faster than any other previous technology. They are changing the way people work, interact and spend their leisure. In most domains there will be significant new technology options that will address fundamental issues of energy, climate and transport. Machine-to-machine (M2M) is the 'Internet of things' that networks devices equipped with a sensor, SIM card and wireless electronics. Now that their cost is below \$10, massive growth is expected in applications for automotive, smart electricity meters, recycling bins, vending machines, health monitoring, etc.

### 7. Increasingly connected world

Internet users for year-end 2011 totalled 2,267 billion, representing 32,7% penetration (InternetWorldStats). By the end of this decade the majority of the world's population will be electronically connected. The national Internet penetration of the population today ranges between 10 - 70% but by 2016 it is expected to be 50 - 100%. The number of mobile phone numbers in 2011 was 5,5 billion and will double to 11,4 billion by 2016; much of this increase will be for M2M devices.

PRINT  
HAS A MIX  
OF MULTIPLE FUTURES  
FOR DIFFERENT MARKET  
SEGMENTS,  
ECONOMIES AND  
CULTURES.



Consumer environmental concerns are a primary influence in developed countries, with criteria including safety, energy, greenhouse gas emissions, water use and traceability of materials. Photo VIM.

## SEVERAL OF THESE MEGA TRENDS ARE FAVOURABLE TO PRINT

- **A**n increasingly urbanised and literate world population will consume more print media and packaging.
- **E**ffective packaging can help eliminate food spoilage.
- **T**he print industry is global and high growth from newly industrialising regions counterbalances static or declining markets in developed countries.
- **E**veryone with a PC and Internet address can become a publisher/printer — this will have an impact on media use — and coincidentally already increases demand for cut paper.
- **I**f the Cloud was a country, its aggregate electricity demand would make it one of the top five in the world according to Greenpeace. Print has a strong environmental profile.
- **O**verload of ‘mass’ e-media information creates opportunities for print as a differentiated medium. TNS Digital Life study in 2011 found that only 9% of US social network users are more open to brand relationships than resistant to them, and 60% explicitly do not want to engage with brands online.
- **A** 2011 survey sponsored by Axel Springer Media Impact showed that more than half of the polled tablet owners read more newspapers or magazines — in printed or in app format — than they did before owning a tablet. GfK MRI research in 2011 shows that US adult owners of e-readers and tablets are also heavy readers of the printed versions of magazines and newspapers.
- **A**n increase in global advertising expenditure should have a positive impact on print consumption generally, although some continuing decline is expected in print publications.

### 8. Decentralisation

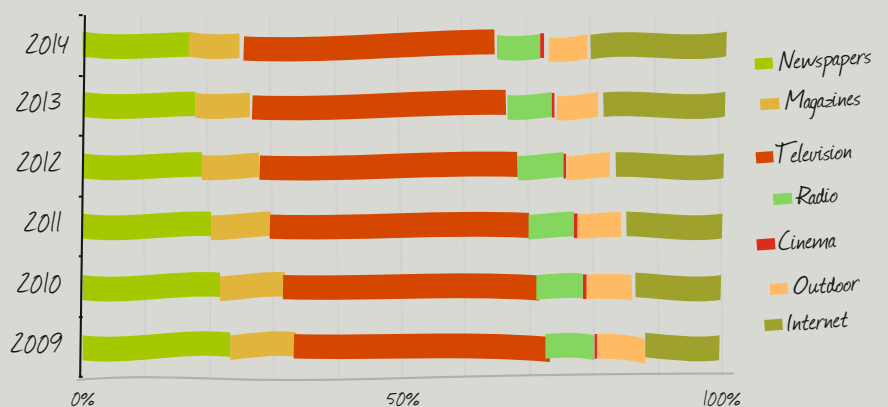
New workplace technologies will shift business towards a more decentralised model with increased individual decision-making according to Economist Intelligence Unit.

### 9. Mass to Fragmented Mobile Markets

Another consequence of the connected world is the challenge to gain attention within a world of e-media overload.

### 10. Global advertising growth

Advertisers are now in a strong position to invest in communication to stimulate demand with growth of 5 - 5.8% forecast for the next three years (Zenith Optimedia 12/ 2011). Overall expenditure is growing strongly and much of this is from the Internet, which should attain a share of 21% by 2014. The 10 top developing markets should increase their market share to 36%.



Strong global annual advertising growth is forecast. Source ZenithOptimedia, 12/ 2011 / PrintCity

**Note** Caution is needed on the somewhat unclear classification and interpretation of media data. There is a risk of confusion, particularly between the ‘medium’ and its delivery ‘channel’ where online advertising revenue for newspapers, magazines and TV is classed as Internet. There is also incomplete or inconsistent data for book, magazine and newspaper markets worldwide.

# Why use Print Media?

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The world is defined by information delivered through increasingly complex media channels. Print media, television, online, mobile and social media are all now vital components of any marketing campaign. Where does print provide reach, exposure and ROI?

## Print Power's 7 Reasons Why

### 1. Feel the difference

Print is the only medium that offers an endless combination of colours, surface treatments, shapes, substrates, smells and tastes, all of which appeal to our senses to create emotional value to suit a specific audience and purpose.

### 2. Add print power

Print is an ideal marketing medium because it is available in any quantity, accessible, always switched 'on', engaging, versatile and creative.

### 3. Make the connection

Print media works because readers invest their time and attention to actively seek entertainment and information.

### 4. No concentration gap

Neurological research finds that readers of print tend to read longer articles because reading on paper tends to have fewer distractions than screen reading. This deep reading capacity also cultivates deep thinking.

### 5. Build relationships

Print is secure and credible and the 'medium' that becomes an integral part of the reader's world. People will often return to a publication several times to take in all of its content. Print also stays around the home or workplace to be read by others.

### 6. Mass and one-to-one contact

Digital printing allows marketers to print content related to the profile of its readers. Personalised print adds to the effectiveness of communication.

### 7. Media-mix integration

Campaigns are more effective when print is part of an integrated solution. Adding magazines to TV and Internet increases brand favourability by 44% and purchase intention by 15% (Dynamic Logic, 2009). 'Smart' bridging technologies such as Quick Response codes and Augmented Reality provide direct links from print to digital.

## PRINT IS ALSO GOOD FOR . . .

- **Concentration** Multi-tasking high school students have deficits in their cognitive capacity and concentration, according to Clifford Nasse, 'Everything distracts them', Stanford University.
- **Deep reading** Nicholas Carr describes in 'The Shallows' that the distracting nature of the Internet leads to "cursory reading, hurried and distracted thinking and superficial learning".
- **Rapid reading** A 2010 readability study by Jakob Nielsen found that a printed book was 6,2% to 10,7% faster to read than tablets and e-readers.
- **Health** Watching TV for over three hours per day reduces life expectancy by 18-22 months and retards learning, according to the University of Queensland.
- **Reducing stress** Reading a book for six minutes reduces stress by 68%.
- **Reading more** The 2010 Kaiser Family Foundation study of the media habits of American children aged eight to 18 found that they spend more time daily reading books for pleasure than in 1999. "It does not appear that time spent using screen media displaces time spent with print media," the report stated.
- **Encouraging young readership** 83% of 18 - 24 year-olds prefer reading from paper than from a screen (2011 Print Power survey).
- **Privacy and performance** Print respects privacy, does not suffer from spam or viruses, and is always 'on'. Print is a reliable storage technology — try reading a floppy disk today!
- **Environment** Print is the only one-time CO<sub>2</sub> media. Paper is renewable and recyclable with managed forests that lock up atmospheric carbon and help mitigate climate change.



Print Power is a European initiative promoting print media among marketers, media and creative agencies by emphasising its effectiveness. Print Power is active in 13 countries and you can join the initiative by checking out the website ([www.printpower.eu](http://www.printpower.eu)) or scanning this QR code.





# Publications & Promotional Print

## Newspapers

Newspapers reach 2,3 billion people worldwide — more than the Internet. Circulation patterns vary greatly, with declines in mature Western markets but increases in Asia-Pacific and Latin America. The number of paid titles is growing, while their average circulation is declining, but the opposite is the case for free titles. Digital readers have increased and are typically about one third of print readership. Advertising revenues have generally dropped, although there has been modest growth over the last year. Advertising inserts continue to be an important revenue stream, and newspaper magazines and supplements are proving to be a robust medium.

Common issues that should impact on most papers are: leveraging the value of content and brand across all media output devices; innovation to improve print and e-media product performance and revenues; newspaper printing will increasingly become a commercial printing segment or profit centre.



NEWSPAPERS REACH 2,3 BILLION PEOPLE WORLDWIDE  
— MORE THAN THE INTERNET.

## Magazines

Printed magazines engage, inform, entertain, and inspire readers. They continue to retain high reader credibility that underpins advertising effectiveness. A 2011 study of advertising ROI by Marketing Evolution found magazines to be the most cost effective means of influencing consumer behaviour, ahead of both TV and e-media. Print advertising remains publishers' primary revenue source.

Publishers and advertisers are using Value Added Printing and Smart Technologies to add multi-media experiences to print stories and advertisements, while creating new revenue streams.

Customer magazines have high growth due to their ability to create a bond between readers and brand owners, who are retailers, banks, insurance companies and car makers.

## Hybrid media

Old media definitions are becoming blurred with the creation of hybrid publications:

**Mag-atalogue:** Adds the content and feel of a magazine to a catalogue.

**News-zine:** A newspaper that is combined with many attributes of magazines.

**Mag-book:** A cross between a book and a magazine with a high pagination, richly illustrated long articles, published quarterly and no advertising.



### Print and e-books

More people are reading more books with more titles published than ever before — about one million in 2010. Printed book consumption continues to increase alongside new technology alternatives. This should continue for the foreseeable future because each reading device has its advantages and drawbacks.

Data for e-books is fragmented, selective or biased. In 2011 US e-book sales were estimated to be 8 - 10% of total book sales, while in Northern Europe the figure is only 1 - 2% (excluding UK). The take up of e-books is nationally variable by book category, cultural, economic or structural issues. Idate forecast that e-books should represent around 12% of the total book market in 2015.

**PrintCity's view is the future will be an evolving mix of several scenarios — but all of which should have in common a two-part integrated strategy: firstly, print must be SEEN, it needs to stand in its own right and be valued as a medium and this needs to be underpinned with a combined LEAN & GREEN manufacturing strategy to optimise profitability and sustainability.**

### Promotional printing

Catalogues and direct mail have faced a common downward trend driven by e-media cost reduction to replace them and/or reduce pagination or frequency to save on paper, print and distribution costs. However, the real question is what are the most effective communication(s) to optimise ROI, and this is where print is still strong.

Catalogues remain a powerful marketing medium, although their role has changed. Once purely a direct-response vehicle, they now drive consumers to the Internet to place an order online.

Since everyone has only one letterbox, direct mail attracts a high level of attention. Unaddressed mail, leaflets, and retail catalogues deliver impressive response rates and a good ROI. Addressed direct mail continues to be one of the most effective ways for brands to communicate with their customers and drive response.

### Value added and smart printing

Value Added Printing increases differentiation by combining several special elements: substrate quality, inks with special effects or metallic pigments, foils, holograms, coatings, finishing and personalisation, including Smart Bridging Technologies.

Print interactive tools begin with simple reader actions like collecting a coupon, completing a reply form, calling a phone number, or connecting with the sense of touch or smell.

Publishers and advertisers are using Smart Technologies to bridge print to online content and create engagement and new revenue streams. These include Quick Response (QR) codes, Augmented Reality (AR) and Near Field Communication (NFC) that incite readers to use their mobile device to connect them to a digital service.

NFC allows smart phones to quickly exchange text, images, URLs with another device or a 'smart tag'. It is currently used as a contact-less payment system, but will soon be used by marketers to push personalised brand messages to customers by knowing who that customer is and where they are.

### Printed electronics

This is a printing segment with strong universal growth for its multiple products in a wide range of applications for consumer, communication, construction and other industries. Mainstream graphic printing processes have the potential for the additive patterning (printing) of functional materials over large areas, at high speed, with good resolution on a wide range of substrates. This opens up opportunities for high volume production of smart packaging, flexible electronics, sensors, photovoltaics, fuel cells, and biomaterials.

### Packaging & labels

Packaging is one of the world's biggest businesses with an estimated worth of around € 500 billion, with printed packaging accounting for about half of this. Global growth is driven by population increases, higher urbanisation and economic growth. Food is the biggest growth category in all developing markets, followed by the health, cosmetics, consumer, and tobacco categories.

Consumer environmental concerns are a primary influence on the choice of substrates in developed countries. Forest based fibre products meet environmental requirements very well as they come from renewable sources and are fully recyclable and decomposable. Forest based fibre accounts for 33% of all packaging substrates used by value because it is the best raw material for many packaging needs.

Trends are to higher impact, high quality packaging with more functional demands and positive environmental characteristics. Packaging and labels are evolving into multimedia Value Added Print information carriers that will continue to use a range of print processes.

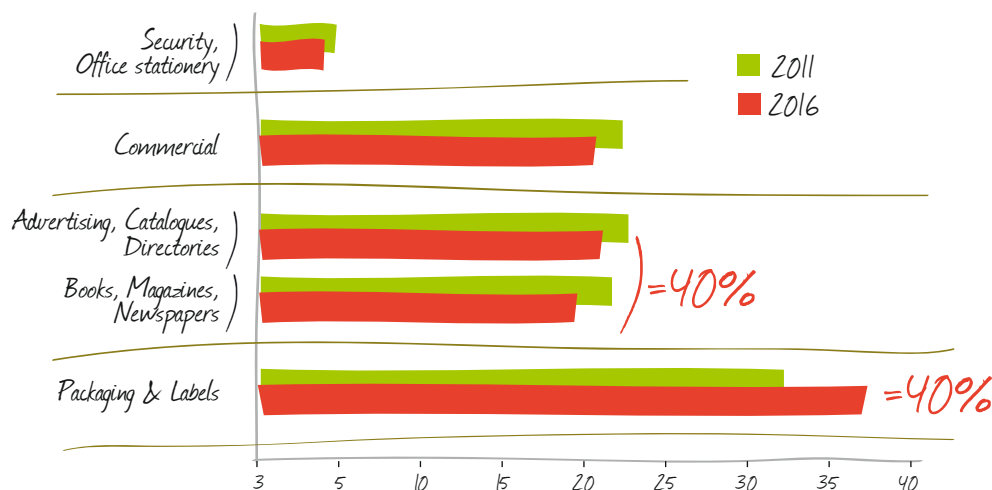
## SOME CONCLUSIONS

Print will be a mix of scenarios that will be variable for different market segments, economies and cultures. The two principal application groups will each have around 40% share of the print market:

- **advertising-driven** media applications that may be “challenged” by e-media in mature markets
- **“universal growth”** applications like packaging, labels and smart printing.

### PRINCIPAL TRENDS AND IMPLICATIONS INCLUDE

1. Continuing print-media ‘right-sizing’ with return to some stability
2. Growth in packaging, labels, and smart printing
3. Print media will experience growth in most developing markets
4. Content and quality are key print attributes
5. Multimedia channels working more closely together — print + e-media
6. Print is a variable object with high differentiation value
7. More industry integration of printers, suppliers, organisations
8. Printers will provide multiple processes and services
9. New technologies give smaller printers greater reach
10. Environmental issues are increasingly important



### PRINT REVENUE CHANGE FORECAST

\$ million constant 2009 prices and exchange rates.

Source PIRA 'Future of Global Printing Market Forecasts to 2014', Dr Sean Smyth 2009 / PrintCity.

# Reasons



**publications**



**promotional**

# PRINT:

- 1 Newspapers**
- 2 Magazines**
- 3 Hybrids**
- 4 Books**
- 5 Promotional Printing**
- 6 Catalogues**
- 7 Direct Mails**

# Newspapers

## Delivering Daily

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Across all media newspapers continue to be the main creators of original content. Many publishers are embracing new solutions to expand their content and brand into a more digital future while strengthening their print products.

The number of newspaper titles worldwide increased by 200 in 2010 to 14 853 (WAN-Ifra). Newspapers reached 2,3 billion people daily, slightly more than the 2,2 billion Internet users at year-end 2011.

Print circulation declined about 2% in 2010 to 519 million. The number of paid titles is growing while their average circulation is declining, but the opposite is the case for free titles. Free newspapers are now distributing over 35 million copies again after a drop in 2009. Research shows that free newspapers in European cities have encouraged a 50% higher readership by 15-24 year-olds than paid-for dailies. Digital readers increased and are typically about one third of print readership.

For a mix of historical, political and economic reasons, newspapers are nationally highly variable. Circulation patterns vary greatly, with declines in mature Western markets but increases in Asia-Pacific and Latin America. However, these averages can be misleading, e.g. French daily newspaper circulations rose 2 - 5% for proactive titles in 2011, but fell by the same amount for the poor performers — therefore, a static average does not represent the market dynamic.

### High value content

Many publishers are leveraging the value of their content and brand to offer information across all media output devices. The high content quality of print journalism is a major advantage for those newspapers that possess it. While e-media allows a vast exchange of information, it is not a substitute for news gathering, where newspaper journalists remain the principal creators of original content across all media.

«The function of daily newspapers has changed because the ways of sharing breaking news have multiplied. As a consequence, printed newspapers have become more important as a medium for explaining the news: background, analysis, critique and artwork are becoming more and more crucial. It's the news behind the news.» Alexandra Förderl-Schmid, Editor-in-Chief, Der Standard, Austria.

### Newspaper revenues

Advertising revenues dropped globally by 23% over the last five years but only by 3% last year. There was modest growth last year of 1% in the US, 2% in Western Europe, and 4% in Asia-Pacific.

Advertising inserts continue to be an important revenue stream for many titles. Newspapers provided value added insert delivery into the homes of readers. In 2011, US newspapers packed their Thanksgiving editions with a record number, led by 'The Charlotte Observer' with 87 inserts that weighed 3 kg. In a 2006 study of newspaper readers sponsored by the Newspaper Association of America, 78% reported that they use newspaper inserts to plan shopping and 76% say that these inserts have helped them save money.

Newspaper magazines and supplements are proving to be a robust medium with a generally strong advertising performance, often with premium rates.

Innovation can add value to readers, advertisers and publishers by offering differentiated print products with different formats, or stitching and trimming, different papers and inks, or digital printing. Heatset drying and UV curing allow newspaper printers to extend their publishing portfolios, to return outsourced printing in-house, and to create commercial printing businesses.

### The search for a new business model

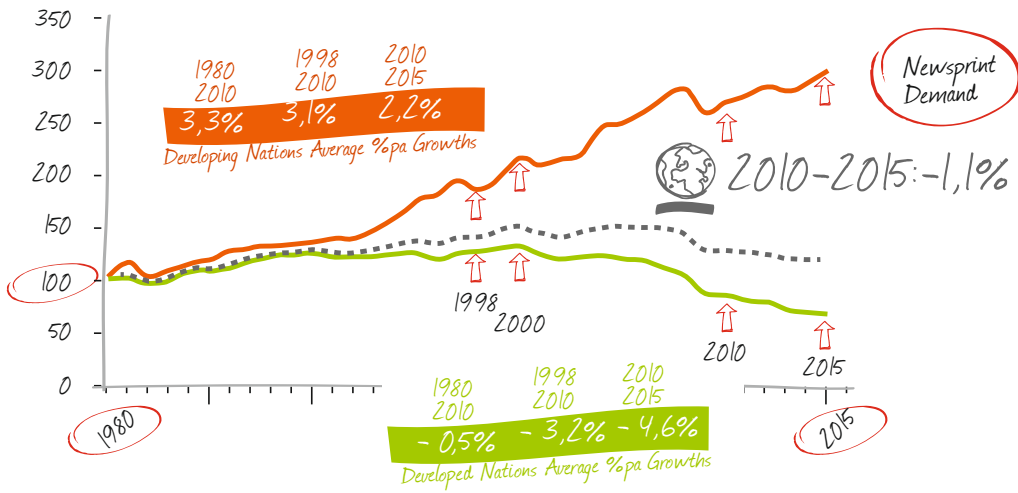
In the US the shift to replace losses in print advertising with new digital revenue is more difficult than expected, according to a 2012 Pew Research Center study. This reveals an industry that has not yet moved very far toward a business model to replace the once-thriving legacy model within which advertising revenue is down by over 40% in the last decade. Some papers are performing quite differently to the norm, some much better and some far worse. One paper studied saw digital advertising revenue grow 63% and print grow 8% in the last year, while another paper gained 50% in digital advertising. The report suggests that these variations indicate that the future of newspapers can be significantly affected by company culture and management, rather than being determined by sweeping trends.

*Newspapers in Europe and Japan are investing in presses, like this one in Magdeburg, with high automation to reduce manning and costs from closed loop process control, systems to accelerate job changeover and provide paper logistics. Photo manroland Web Systems.*

### Common issues that should impact on most papers are:

1. **Leveraging the value of content and brand across all media output devices.**
2. **Innovation to improve print and e-media product performance, and diversify their revenues.**
3. **Newspaper printing will be increasingly a commercial printing segment or profit centre.**





## NEWSPRINT DEMAND

Global newsprint volumes are declining in spite of increases in developing countries. However, this chart does not consider the impacts of light-weighting and reduced print processing waste that probably has a positive 0,5 - 0,75% annual impact on these figures. Web width reduction and format downsizing would add to this. Source EMGE/PrintCity

# 7 Reasons

## To Advertise In Newspapers

### 1. Reach and reliability

Newspapers reach 2,3 billion people worldwide daily — more than the Internet. Different sections, supplements and types of paper allow advertisers to address specific reader groups.

### 2. People read newspapers

They are the most reliable source of news, information and insight. Their high level of trust leads people to spend significant time reading 'their' newspaper.

### 3. Emotional connection

Neuroscience research has demonstrated that newspaper advertising drives a stronger emotional response than TV advertisements (NMA Emotional Connections Report 2007).

### 4. Universal appeal

Newspapers offer a wide variety of content. This means that no matter what the brand, there is always relevant content it can fit into.

### 5. The short-notice medium

Advertisements can be delivered at very short notice, just in time for the daily distribution of newspapers.

### 6. Integration

Research shows that newspapers are excellent at driving readers to their advertisers (and their own) websites to deliver significant cross-media advertising effect.

### 7. Effectiveness

Newspaper advertisements and inserts give any brand an immediate response as virtually all of the reach is delivered on the day of publication. Low production costs also make multiple executions more feasible.



Free newspapers have a much higher readership by 15-24 year-olds than paid titles. Photo manroland Web Systems.

# Innovative and Effective Magazines

## Print advertising remains publishers' primary revenue source

Printed magazines are the medium that engage, inform, entertain, and inspire their readers — this is the consistent conclusion of worldwide research.

Magazines continue to retain high reader credibility and engagement that underpins its advertising effectiveness. A 2011 study of advertising ROI by Marketing Evolution found magazines to be the most cost effective means of influencing consumer behaviour, ahead of both TV and e-media. Print advertising remains publishers' primary revenue source.

Reliable worldwide data on the number of magazine titles and their circulations is not available. However, consistent data on magazine paper consumption shows a reasonably positive view of printed magazines as newly emerging economies increase their consumption, while volumes in developed markets have stabilised. The positive dynamic of magazines is demonstrated by the 30% increase in launches of new titles in 2011.

### Diverse markets

Magazines are not a homogenous market. There are many different types of magazines that have diverse growth opportunities. This is particularly true for consumer magazines, from leisure, information, entertainment and TV guides to special interest. Extensioning and versioning to different specific audiences is increasing. Strong international brands keep continue to expanding, with Cosmopolitan from Hearst leading with 34 language editions, sold in 100 countries, followed by Vogue, Elle, AutoBild, and Geo.

Business and professional magazines have suffered some loss of advertising and revenue, and are having to reinvent themselves. For example, Bloomberg LP bought the failing 'Businessweek' in late 2009 for \$1 and by the first half of 2011 increased its advertising pages by 21% year-on-year and its subscription by 12% to 980 000. The title's renaissance has come from its focus on excellence in content, innovation and design.

### Combining new technologies.

Creativity is alive and well in print advertising as Smart Bridging Technologies connects print to digital via Quick Response (QR) codes and Augmented Reality (AR), see page 31. In 2011, about 5% of US magazines adverts advertisements contained a QR code — nearly four times as many than in 2010 (GfK MRI Starch). Publishers and advertisers are using these technologies to add multi-media experiences to print stories and advertisements while creating new revenue streams.

### Print on paper

"Rapid technological development and an uncertain economic background are the driving forces behind the huge amount of experimentation being undertaken by magazine media companies. Encouragingly, print still retains the ability to surprise and innovate," says Chris Llewellyn, FIPP president and CEO.

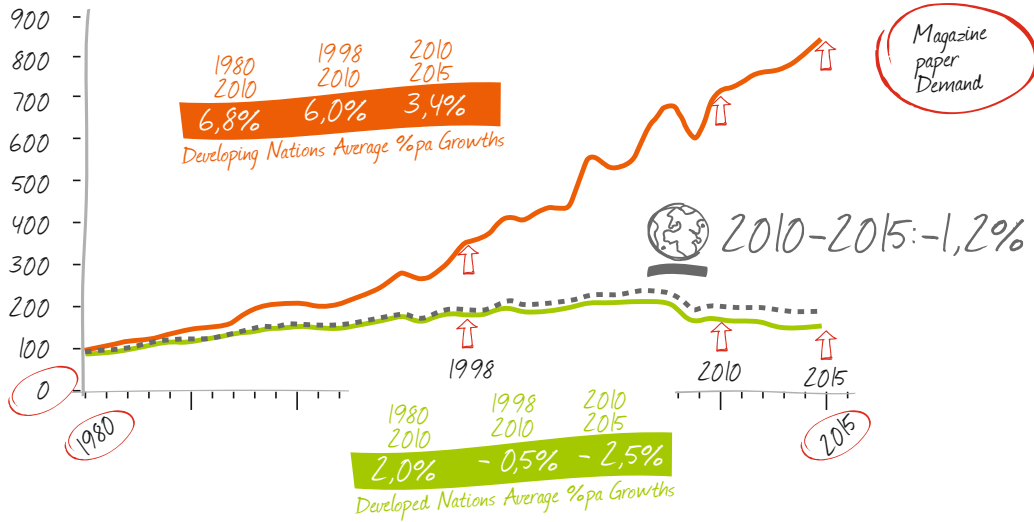
An interesting US research finding in 2011 is the seeming contradiction between the fact that 67% of tablet magazine readers said they prefer to read electronically, yet 65% also say it is more satisfying to read on paper. "This may be that although electronic magazines are valued by tablet readers, paper magazines still have a special tactile appeal," said Risa Becker, SVP research at GfK MRI.

The other extreme of "read it on paper, or don't read it at all" is an approach that publishing experts might call sheer madness. However, the German 'Landlust' has more than a million readers who have adopted this approach that eschews Twitter feeds, iPad apps, Facebook, blogs, etc, and there is not even a digital version of the magazine.

*The July 2011 issue of House Beautiful magazine was one of the first consumer magazines to put digital watermarks to use. Publishing director Kate Kelly Smith comments that the readers' long-time 'friend' and companion — the print magazine — is becoming a more personal and more real advisor with the integration of print and digital. Photo 'Innovations 2012 Report', FIPP*







# 7 Reasons

## To Advertise In Magazines

### 1. Reach

Magazines are one of the most widely distributed forms of media, with a vast number of titles that reach an average of 80% of European adults — a huge potential customer target.

### 2. Targeting

Magazines by their very nature are targeted. Every title is crafted in some way to appeal to the interest of a certain readership. That readership is loyal, with over half of all adults reading at least one magazine title (NRS, UK, Dec 2008).

### 3. Focus

Reading a magazine is an individual experience where the reader becomes immersed in the title's editorial and advertising content without any competing messages.

### 4. Inspiration

Research shows that readers regard their favourite magazine as a "trusted friend", a "spur to inspiration" and a "symbol of status" (Henley Centre, 2007).

### 5. Integration

Over half of all readers take action on magazine adverts, or have a more favourable opinion about an advertiser because of it. Adding print to TV and online media will almost double brand awareness and increase purchasing intention by over 50% (Marketing Evolution, 2004).

### 6. Generating awareness

Research shows that the average Awareness Index for TV and print is about the same but magazines are a much more cost-effective media (Millward Brown, 2008).

### 7. Sales effectiveness

Reader exposure to a magazine campaign will increase a product's sales revenue by over 11% (PPA, 2008). The research also found that € 1 spent on magazine advertising led to a € 1,79 short-term sales increase, that rose to € 2,77 over 12 months.



These pages includes extracts from 'Innovations in Magazine Media 2012 World Report', Juan Señor and John Wilpers, published by FIPP & Innovation International Media Consulting Group (PrintCity produces a value added cover for the book). For more information [www.fipp.com](http://www.fipp.com).

# Customer Magazines & Hybrids

**Entertaining and informative content builds a bond of trust**

## **Growth in customer magazines**

Customer, company and club magazines have grown into an estimated € 1 billion global industry. Of the top 20 magazine circulations in the UK, 15 are customer titles (led by M&S magazine with 1,25 million copies). Their success is due to their ability to create a bond with magazine readers. An APA study found that UK customer magazines increase brand loyalty by 32%, stimulate sales by 8%, and improve brand image by 9%. The biggest users are retailers, banks, insurance companies and the automotive industry. These publications are usually produced by specialist design agencies, along with some mainstream publishers.

## 7 Reasons

### **To Engage With Customer Magazines**

#### **1. Building relationship**

Customer magazines can build strong brand loyalty with readers that can result in stronger sales, or even turn customers into brand ambassadors.

#### **2. Substance and tangibility**

Consumers still enjoy the tangible feeling of holding a magazine in their hands, with 57% stating a clear preference for printed magazines against online versions (Targetcast, 2009). Practicality, portability and accessibility also play a key role in consumers' preference for print.

#### **3. Engagement**

Entertaining and informative content builds a bond of trust between the brand and reader that can be used to incite some form of action. This content comes from a single brand with no third party filter and is presented in a non-invasive way, creating affinity and building a rapport with the reader.

#### **4. Targeting power**

Customer magazines can target all customer groups by tailoring content specifically for their interests and habits to increase engagement.

#### **5. Effectiveness**

Consumers may spend up to 25% more with a brand when customer magazines are used in conjunction with online marketing communication (Royal Mail, UK, 2008).

#### **6. Entertainment**

Getting the customer interested in the content is the key step. They will then be more receptive to receiving other messages. Provide them with useful editorial and they are more likely to keep the magazine, and continue referring to it.

#### **7. Complexity**

The editorial space allows complex messages to be presented in an informative and entertaining way. An increasing number of customer magazines are being used as an educational tool in the media mix, using infographics and repetition to help the reader understand key subjects.

# Hybrids

## The mag-alogue

Leading Dutch home decoration magazine 'vtwonen' have created a print and online magalogue that successfully combines the convenience of a catalogue with the content and feel of a magazine. Unlike a conventional catalogue, 'vtwonen' offers a wide variety of products from a variety of sources. As a result, online revenue increased 20% over the previous year, and the print edition's kiosk sales rose by 15%. The print and online editions work well together, with 60% direct traffic from the print magazine to the online edition.



The 'vtwonen' magalogue was produced in print, online, and mobile formats to increase sales for both 'vtwonen' and its advertisers. Photo 'Innovations 2012 Report', FIPP.

## Newspaper supplements & News-zines

Newspaper magazines have been around for decades and are proving to be more robust than the newspaper itself. Although they are not normally considered as independent magazines, they have a similar look and feel, and compete for the same advertisers. A hybrid in recent years is the News-zine, which is a combination of attributes of both media, examples include 'l' in Portugal, 'Österreich' in Austria.

## Mag-books

The mag-book was launched in France in 2008 with 'XXI' that now sells around 50 000 copies, with a break even point of 25 000 sales. Mag-books are generally quarterly and have no advertising. Their design is between a book and a magazine with a high pagination, richly illustrated long articles, on high quality paper, and a heavy perfect bound cover. A number of other mag-books have been launched and there is strong international interest. In 2012, 'France Culture Papiers', was launched with 200 illustrated text pages drawn from France Culture radio station's quarterly 2200 hours of broadcasts with 3500 interviews. The May edition's QR codes will allow readers to use their smart phone to listen to what is printed.



Mag-book design is between a book and a magazine with a high pagination, richly illustrated and on high quality paper. Photo PrintCity

# Printed and Digital Books

**"It's a myth that digital consumers stop buying printed books"**

Jim Hilt, Barnes & Noble, at Digital Book World 2012

More people are reading more books with more titles published than ever before — about one million in 2010. Printed book consumption continues to increase alongside new technology alternatives. This should continue for the foreseeable future because each reading device has its advantages and drawbacks. This is demonstrated by 'hybrid sales' with one reader buying both digital and paper based volumes.

## Publishing in Europe

Europe leads international book publishing with an annual turnover of € 23,5 billion in 2010. European owned companies dominate the world's 10 largest publishing groups, and the three biggest international book fairs are in Frankfurt, London and Bologna. Around 525 000 new titles were issued by European publishers in 2010, led by the UK (151 969), Germany (84 351), Spain (42 300), and France (40 021), while publishers hold around 7,5 million different titles in stock.

## North America is thriving

The US tends to have the fastest take-up on new technologies and it is, therefore, remarkable to see that in spite of e-books, the printed book environment is thriving. Sales were worth \$27,94 billion from 2,57 billion books in 2010, and 289 729 print titles were published. Adult literacy in 2010 was at an all-time high of 98% of the adult population, along with library membership of 68% of the population.

US children are reading more books more of the time. "It does not appear that time spent using screen media (TV, video games and computers) displaces time spent with print media," reported the 2010 comprehensive Kaiser Family Foundation study of the media habits of 8-18 year old American children.

## E-books variable growth

One of the problems when considering e-books is that the related data is fragmented, selective or biased. In 2011 US e-book sales are estimated to be probably 8 - 10% of total book sales, while in Northern Europe the figure is around 1 - 2% (excluding UK). Idate forecast that e-books should grow by around 30% per year from 2012 to 2015, when they will represent around 12% of the total book market.

The take up of e-books is nationally variable by book category, and for cultural, economic or structural issues.

Price is a determining element for the rate of growth. Highest growth will be in markets like the UK and US that have no price control. An e-book in the US is about 50% cheaper than its paper version, while in some European countries it is only 10 - 20% less. In addition, printed books in Europe are cultural items with a sales tax of 2 - 7%, but an e-book is a 'service' with a tax of around 20%.

The number of languages available can also affect market penetration, e.g. the Amazon Kindle currently has no titles for 21 of the EU's 27 official languages. Other factors impacting on sales are the number and types of books available, and the proximity of book stores to population centres.

## E-publisher complexity

New costs for publishers from electronic publishing include investing in digitisation systems, staff and technology, and the costs of file conversions into specific formats. A high concern is the risk of proliferation and ease of piracy content in digital form. Online purchased e-books are copyright protected by Digital Rights Management (DRM), but out-of-copy-right editions use more open formats.

The lines between publishers, distributors and booksellers are becoming blurred. National book distribution rights for physical books are less relevant for digital distribution. There are also newcomers like Amazon and Google; and, in some cases, National or Institutional Libraries are creating new distribution and marketing channels. The e-book Alternative (TEA) is the first open source distributor for e-books allowing readers to choose their book seller, device and title while conforming with DRM.

Publishers and readers are unhappy with the low platform compatibility between the multiple dedicated e-readers (Amazon Kindle, Virgin Cybook, Barnes & Noble Nook, Odyssey, FNAC Kobo) and various tablet devices.

*Digital printing allows publishers to produce short runs of books on demand for a moderate price, without the risk of unsold copies being stored in warehouses and eventually pulped.*  
Photo Océ.



# Growing Together

### Richness of output choice

For the reader each book type has its own advantages and disadvantages:

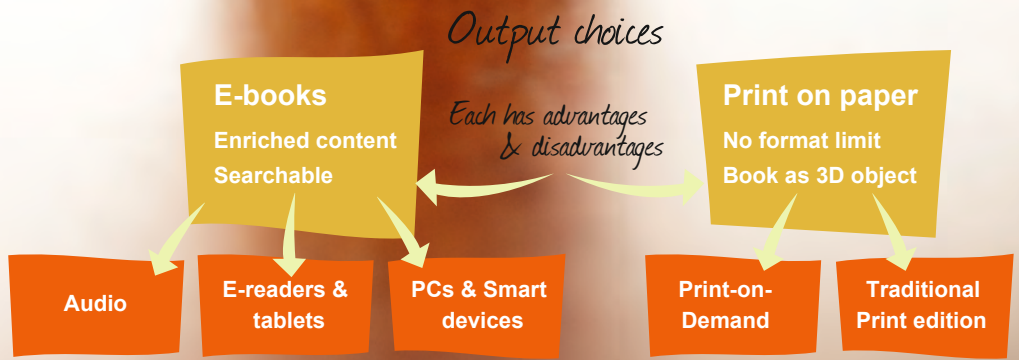
**Printed books:** Respond to the strong preference for reading ink on paper for many types of books. This preference is also high among young readers. Physical books can be lent, given and sold to other readers (something not possible with e-books) and have a proven life of hundreds of years.

**E-reading devices:** Stock thousands of books in a tiny physical space and the content of these books is searchable. New books can be downloaded at a distance. The digital format allows enriched editions with interactive sound and video. On the downside, electronic devices have a limited lifetime and books may not be transferable to a replacement device; digital storage is volatile and short term; and Cloud back-up storage adds complexity and cost.

It is probable that a new class of hybrid books will evolve between these extremes by combining the tactile advantages of printed books with Augmented Reality or Quick Response connections to enriched content online.

Book printing companies are generally large and are already taking steps to integrate services along the value chain, such as storage, database management, design for web or print, developing their prepress department, and offering digital Print-on-Demand alongside offset production.

Printed books can be lent, given and sold to other readers (not possible with e-books) and have a proven life of hundreds of years.



*Digitalisation has facilitated growth. It makes almost all books ever published available as either classic books, Print-on-Demand, or e-readers. 'Out-of-print' is no longer an access barrier to readers. Source PrintCity.*

**Promotional printing embraces catalogues, direct mail and other print products such as brochures, inserts and flyers.**

# Promotional Printing

## Consumer trust of printed communication remains high

Promotional printing embraces catalogues, direct mail and other print products such as brochures, inserts and flyers.

Catalogues and direct mail have faced a common downward trend that is mainly driven by cost reduction initiatives such as shifting to e-media and/or reducing pagination or frequency — to save on paper, print and distribution costs. E-media is seen to provide speed, cost reduction and measurability unavailable from print. However, the real question is what are the most effective communication(s) to optimise ROI?

Consumers say that print advertising has the most influence on their store and shopping choices, according to a Nielsen survey of 11 000 US adults. 'The Evolution of Circulares: From Print to Digital, Q4 2011' examined marketing channels and their sway on consumers; survey findings include:

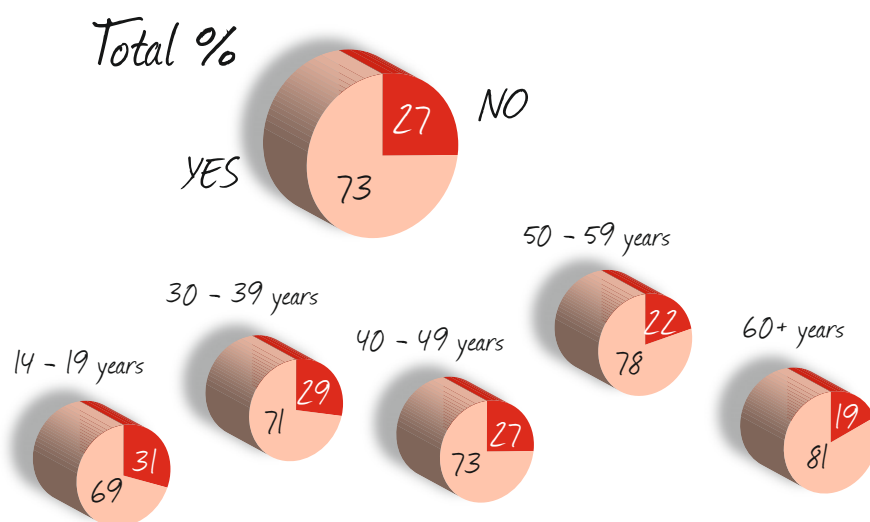
- The media sources that shoppers most rely on weekly are newspapers (69%) followed closely by direct mail (67%). The one electronic vehicle demonstrating equivalent reach is retailer e-mail (67%).
- Interestingly, store choice for the youngest generation is most heavily influenced by print vehicles direct mail (92%) and newspapers (91%) were cited as most influential.

Printed promotion is a visible incitation to purchase — incorporating a “serendipity” factor not available from e-media (“serendipity” is when you accidentally discover something you like), while online provides specific product search and purchase.

Effectiveness is therefore the key for print use. Research demonstrates that promotion campaigns are more effective when they combine several media, including print. The US Direct Marketing Association's 2010 Response Rate Trend Report shows that catalogues had the lowest cost per lead/order of \$47,61, inserts were \$47,69, and e-mail \$53,85 cost per lead.

Delivery has a major impact on cost and effectiveness and can be via inserts in newspapers, magazines, letterboxes or store display. Printed catalogues in a letterbox are 'seen' for milliseconds before a decision is made to keep or throw away, whereas Internet versions are often clicked away unnoticed, assuming they make it through the spam barriers. Many e-mailings do not show images unless the consumer activates them and this largely depends on the subject and the reputation of the company concerned.

A quantified example from UK research found that 92% of direct mail was opened vs an Internet open-click-through of only 11,2%. Print remains a trusted and sustainable media that provides added value to personalised interaction with digital media.



*The importance of print in the purchase path is illustrated by this survey that shows about 70% of all Internet customers got their information about a product first from a printed catalogue before placing their online order. Source: bvh study 2010/PrintCity*

# 7 Reasons

## Why Catalogues Work

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## Catalogues

Catalogues remain a powerful marketing medium, although their role has changed. Once purely a direct-response vehicle, they now drive consumers to the Internet to place an order online.

Some companies that switched to completely non-paper catalogues have returned to a mixed print strategy because of poor digital-only results.

Electronic and paper versions do not serve the same purpose. The printed catalogue informs about, and motivates customer's needs for, a product they don't even know about, while the online catalogue allows searching for a specific product and/or initiate the purchase process. As long as this differentiation continues then printed catalogues will continue to be an essential part of the communication budget of a brand owner. Paper also remains the best choice for exclusive items.

Print catalogues retain their vital retail role with new formats, smaller less generic, and more focused editions, and the introduction of editorial content in 'magalogues' (see page 17).

### 1. Accessibility

Print catalogues are portable, aspirational and designed to be picked up repeatedly. Their core qualities include ease of use, level of trust and accessibility.

### 2. Information

The catalogue is a readily available source of information — price, look, colour, size, quality and performance can all be communicated quickly. This can be enriched with QR codes and Augmented Reality to link print pages to e-media.

### 3. Seduction

For high-end products, catalogues offer the opportunity to draw customers into the brand's world, giving them an experience that goes beyond the shop window. Striking design, paper and production techniques can provide a seductive experience that makes purchase more likely.

### 4. Brand building

A catalogue occupies a significant amount of the customer's time to strengthen a bond with the brand and a heightened sense of trust. 'Magalogues' include editorial content as well as product information, increasing customer engagement and subsequent sales.

### 5. Targeting

Catalogues work best when their distribution is targeted to the desired defined audience. Online shopping data can be used to optimise targeting and printed QR codes to drive consumers to the desired website or store.

### 6. Brand loyalty

Creative and innovative catalogues foster customer brand loyalty. The catalogue is like a shop window in the customer's home, the ideal place to impress them and then direct them to the website or store to complete a purchase.

### 7. Effectiveness

Catalogues combine with the immediacy of online shopping to increase the effectiveness of both. Tracking purchases via personalised URLs printed in the catalogue increases the sales-per-page figures — information that can be used to optimise the layout of future editions.

Printed catalogues drive consumers to the Internet to place an order online. Photo UFM



## Letterbox Delivery

Since everyone has only one letterbox, direct mail attracts a singular focus and a high level of attention.

Unaddressed mail, leaflets, and retail catalogues deliver impressive response rates and a good ROI. The market is estimated to be worth over € 3,8 billion in Europe (ELMA). Letterbox delivery owes its success to its low cost, high reach and immediate access to consumers.

The key factor for success is that the consumer receives branded material at home where they can read and respond to the messages in their own time. Campaign costs are only a few cents per household for printing and delivery, that drives rapid and measurable response.



*Direct mail attracts a singular focus and a high level of attention.  
Photo Print Power.*

Brochures, inserts and flyers have a relatively stable volume that is expected to be maintained. Printed brochures are still seen to have a bigger impact on most customers than an electronic version — a major opportunity for personalisation with digital printing. For example, the automotive industry uses brochures that are personalised so that you can actually see yourself driving a new car. Directories are increasingly being substituted by the Internet as a primary information source. Nevertheless, printed telephone directories remain a valued source of local advertising and information.

# 7 Reasons

## To Welcome Letterbox Delivery

### 1. Impressive ROI

The cost-per-response for door-drop delivery is three times better than the average of all other media, and more than five times better than direct mail (RDP Ltd).

### 2. The right environment

Research shows that door-drops are appreciated by consumers, with one study showing that only 8% of consumers regard them as irritating (Intomart GFK, 2011).

### 3. Mass market

The letterbox is the only way of delivering a printed document to millions of households in any country. Local and regional variations are simple and cheap to achieve.

### 4. Targeted

Geomarketing allows the desired demographic to be selected. The media reaches only those who are receptive to it because consumers have the choice to opt out of delivery.

### 5. Creativity

Many brand owners use the versatility of the medium to differentiate their communication with Value Added Printing techniques such as unusual formats, papers, surface treatments, etc.

### 6. Sample distribution

Getting the product into the kitchens of customers raises awareness of the brand and gets people to try a product — 71% of consumers cite product sampling as the main reason for switching to another brand (Opinion Research Corporation, 2009).

### 7. Integration

Door-drop is even more effective when used as part of an integrated campaign. Advertising may create awareness of a product or service, but it is the door-drop that triggers the action, sale or response. QR codes or Augmented Reality allows easy integration with digital media.

## Other promotional print

### Outlook

Consumer trust of printed communication remains high. The future will see more personalisation; digital printing, possibly combined with offset, providing a major advantage for paper versions. Overall, the picture looks quite balanced for the future of promotional and commercial print sectors.

The printing industry will need to find a sustainable way to interact with the digital world! This will include technology developments like inkjet, printed electronics, QR and Augmented Reality that permit paper to be seen as the most trusted and sustainable resource in the total process. Value Added Print has an important role to play for differentiation, attention and emotion in this segment.



# Direct mail

Direct mail has long been one of the most effective ways for brands to communicate with their customers and drive response. This success does not show any signs of slowing down, with the Direct Marketing Association (DMA) forecasting a rise of 3,6% for 2010-2014 .

Brand owners are experiencing some benefits from digital media and aim for extensive cost reductions by using social networks, mail or mobile apps. High postage costs are a major driver to digital

media, particularly as addressed mail can consume 30 - 40% of the total direct mail budget. However, electronic mail often has difficulty reaching specific target groups. Printed mail can be tailored and sent to the individual customer, while electronic versions often get automatically deleted or referred to spam filters.

The most effective results are from combining paper and electronic media into an integrated campaign.

## 7 Reasons

### Why Direct Mail Delivers

#### 1. The mail moment

Direct mail is consumed on a one-to-one basis in an individual's home. This gives much more time to raise awareness, persuade, convince and engage them in a relaxed environment at a time of their choosing.

#### 2. Sensory experience

The physical aspect of a mailing adds another dimension to the brand experience. Value Added Printing techniques touch multiple senses to encourage consumer response, brand loyalty and mailing retention.

#### 3. Precision targeting

Direct marketing works best when it is made relevant for the recipient with personalised content. On average, 91% of consumers open prospect mailings, a rate that has been increasing since 2006; this is largely due to the personal nature of direct mail.

#### 4. Make people act

Direct mail incites customer response, and the cost of every response can be accurately measured. The medium offers incentives to make people act and, as a tangible object, it is more likely to remain readily available and visible in the prospect's home.

#### 5. Effectiveness

Research shows that as a result of mailing in the preceding 12 months, 48% of UK adults made a response action, and 30% bought something (Royal Mail Consumer Panel, 2011). Direct mail is particularly effective when targeted to brand ambassadors who can influence a wider audience.

#### 6. Interactive:

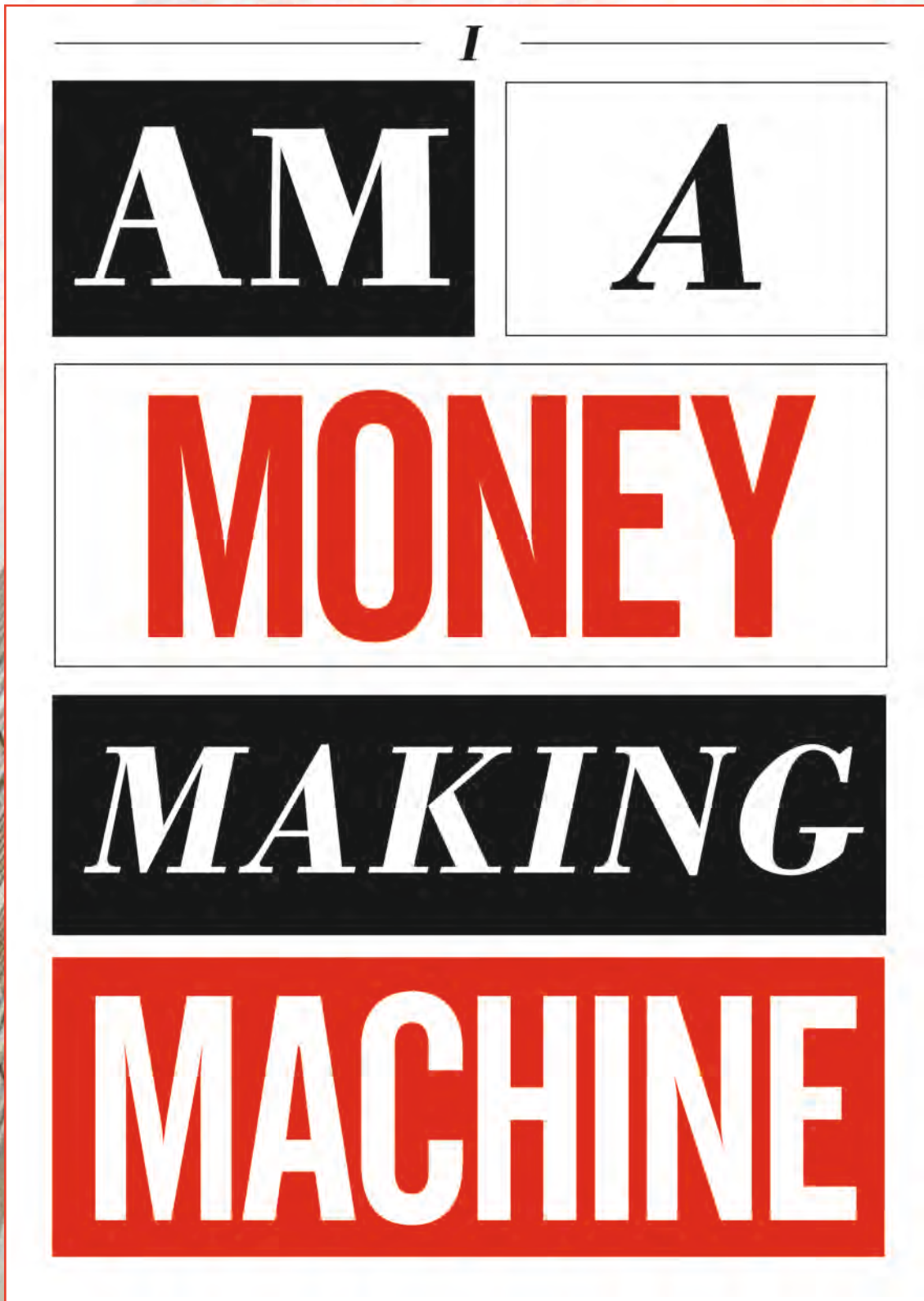
Direct mail is unique media that can be produced in a wide variety of formats to create a memorable brand experience. Mailings that provide a physical interaction that gets the receiver to construct or play with something stay in the memory and in the household much longer.

#### 7. Integration with other media

Effectiveness increases when used as part of an integrated campaign. TV campaigns are 37% more effective when direct mail is used, a figure that rises to 62% for online campaigns (OMD Brand Science, 2009). 'Smart' bridging technologies such as QR codes and Augmented Reality also increase effectiveness by providing a link between print and digital.



Digital printing allows marketers to print content related to the profile of its readers. Personalised print adds to the effectiveness of communication. Photo Océ.



Experience how to generate increased interactivity, visit [printpower.eu/printcity](http://printpower.eu/printcity)  
Do you want to experience how print media — like newspapers or magazines adverts, direct mail or brochures — can create more engagement with readers?  
Then go to [www.printpower.eu/printcity](http://www.printpower.eu/printcity) and keep this image at hand.  
Use the access code "DRUPA" to see the amazing effects of Augmented Reality.  
**Adding Power to your print media.**



**SMART:**

**printing**

**packaging**

**&**

# Value Added Printing

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## Print

IS THE ONLY MEDIUM THAT CREATES EMOTIONAL VALUE TO SUIT A SPECIFIC AUDIENCE AND PURPOSE.

**PrintCity defines Value Added Printing as a product that is VISIBLY DIFFERENT to standard printing; that is RECOGNISED by consumers, advertisers and brand owners; that is capable of attracting HIGHER REVENUES; and/or adds to DIFFERENTIATION.**

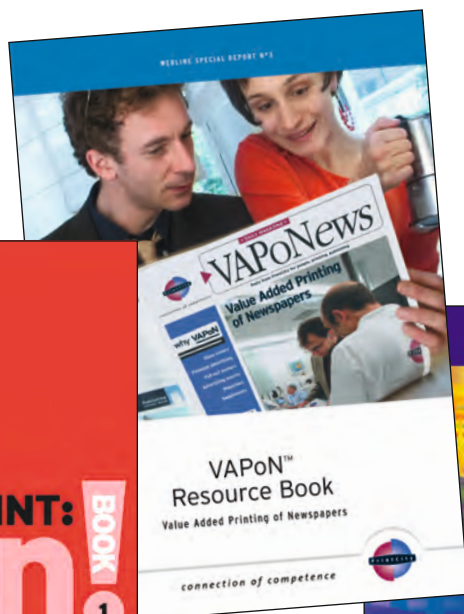
Value Added Printing applies to most print products because the competition to attract point-of-sale attention is intense — whether it is a packaged product in a store, a magazine in a news kiosk, or a book on a display shelf. For all, the challenge is how to activate in the viewer a perceived differentiation and positioning from the product's shape, colour and effects.

Print is the only medium that offers an endless combination of colours, surface treatments, shapes, substrates, smells and tastes, all of which appeal to our senses to create emotional value to suit a specific audience and purpose.

The role of Value Added Printing is to increase differentiation by combining several special elements: substrate quality, inks with special effect or metallic pigments, foils, holograms, coatings, finishing and personalisation, including Smart Bridging Technologies (see next page).

PrintCity has been a leader in Value Added Printing since 2004. Its projects include Value Added UV, Newspapers (VAPoN), Magazines (VAMP) and Packaging (VAPack see page 32).

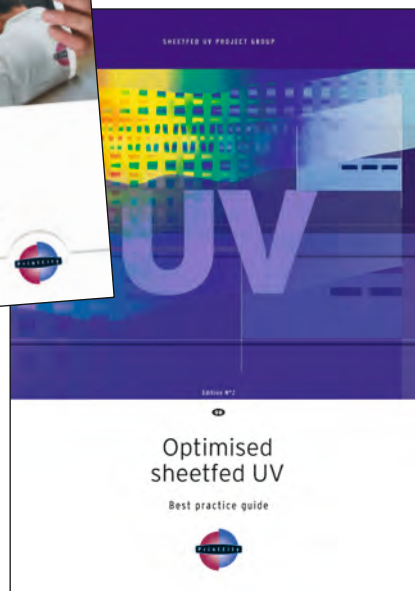
There is no one-size-fits-all solution; rather, there is a large menu of options to define the right solution for a specific product and target market.



The 'VAPoN Resource Book' is the comprehensive reference to Value Added Printing of Newspapers. It is available from Sun Chemical, manroland, MEGTEC, Océ, Trelleborg, UPM and Eltex, or order copies from [www.printcity.de/shop](http://www.printcity.de/shop). Source PrintCity Alliance



The cover of this book uses a hybrid coating effect that gives a high contrast 2-in-1 matt and gloss surface finish. The effect requires a 5-colour press and coater equipped for UV production. Photo PrintCity.



'Optimised Sheetfed UV' is the only fully integrated generic best practice guide available. The second edition is in five languages from participating companies Böttcher, Eltosch, manroland, Merck, Sappi, Sun Chemical, Trelleborg and UPM, or from [printcity.de/shop](http://printcity.de/shop) at € 30.

# VAST™ – Value Added Smart Technologies

Smart Technologies that bridge print to online content include Quick Response (QR) codes, Augmented Reality (AR) and Near-Field Communication (NFC). These systems incite readers to download an app and then use their smart mobile device to scan a code, or photo, to connect them to a digital service. Other Smart Technologies on the print product itself are embedded audio, video, LED displays, RFID, or digitally printed inserts.



'FHM' from Bauer Media in Germany was one of the first fully interactive magazines. The Digital Space technology integrates invisible algorithms and watermarks to scan items in the photo to see how much they cost and where to buy them. Source FIPP Innovations.

## Adding

MULTIMEDIA EXPERIENCES TO PRINT CREATES NEW PRODUCTS AND REVENUE STREAMS

After downloading a free app, readers were able to 'virtually drive' a new VW on a road spread across the pages of a Norwegian magazine. Source FIPP Innovations.

Publishers and advertisers are using QR and AR to create interest and new revenue streams. They have become more popular as innovative applications and business models become available, along with a better understanding of how to use them.

QR is a 2-D code that is free, or low cost, it requires a microsite, animation and server space to function.

AR is less obtrusive but more complex. Readers download an app then place their smart device over a printed page to read the connection code embedded in a photo or product label. It then makes the page come alive with a video or computer game.

NFC allows smart phones to quickly exchange text, images, URLs or other data simply by holding the phone up to another device or a 'smart tag'.

### Smart campaigns

Success largely depends on HOW to use the technology; some tips:

- Always tell readers how to use it and include visible instructions for downloading the app.
- Make it worthwhile for readers to respond with exclusive connection to content, like games and offers.
- Tell readers why it will be worthwhile to connect and optimise rewards.
- Test the printed codes and their connections to avoid failure risk.



Reporters Without Borders Belgium advert asked readers to place a smart phone over the mouth of the dictator to listen to a journalist talking about suppressed speech liberties. Source FIPP Innovations.

THESE PAGES INCLUDE EXTRACTS FROM 'INNOVATIONS IN MAGAZINE MEDIA 2012 WORLD REPORT', EDITORS JUAN SENOR AND JOHN WILPERS, PUBLISHED BY FIPP & INNOVATION INTERNATIONAL MEDIA CONSULTING GROUP.

# Printable Electronics

**This is a printing segment with strong universal growth for its multiple products used in a wide range of applications for consumer, communication, construction and other industries.**

## Printing

COULD  
RADICALLY  
CHANGE  
THE WAY  
IN WHICH  
SOME EXISTING  
PRODUCTS  
ARE  
MANUFACTURED

Mainstream graphic printing processes have the potential for the additive patterning (printing) of functional materials over large areas, at high speed, with good resolution on a wide range of substrates. This opens up opportunities for high volume production of smart packaging, flexible electronics, sensors, photovoltaics, fuel cells, and biomaterials. This could radically change the way in which existing products are manufactured and may lead to the creation of new products.

### e-ink

This is one of the most widely used applications of printed electronics. The Kindle and other reflective e-readers using e-ink where black and white charged pigment are encapsulated. A momentary application of an electrical charge causes either the black or the white pigment to come to the top, depending on their polarity.

### OLED

#### Organic Light Emitting Diode

Printed electroluminescent lamps for self-illuminated posters, etc are well established and offer printers the opportunity to add value. There is now significant development of OLED as light sources, although the requirement for controlled atmosphere processing is a challenge for printers. Add-vision, a Sumitomo company, has developed an atmospherically processed OLED material but this needs to be encapsulated to ensure an acceptable operating life.

### RFID

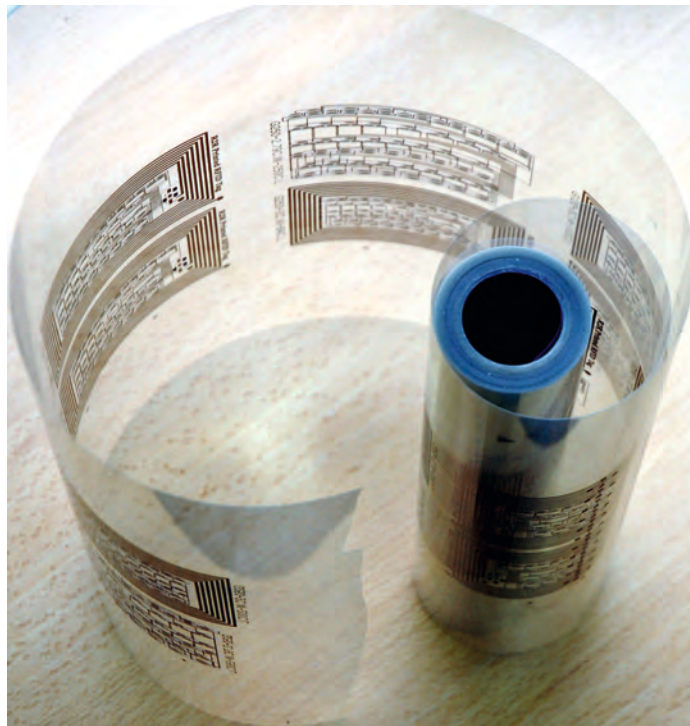
#### Radio Frequency Identification

The Korean Suncheon National University has developed the first fully printed RFID label that includes both antenna and high frequency transistor circuitry. However, the cost of the materials and the implications for recycling mean that these are likely to be used only in high value added applications.

### PV

#### Printed Photo Voltaic

Currently limited to the charging of mobile phones, but TATA Steel's "Specific" project is aimed at turning buildings into power stations by incorporating PV into the exterior steel cladding. As well as generating power, the cladding can also incorporate energy storage and lighting.



Printed RFID Tags.  
Source Paru/OE-A.

## Developments of materials and printing

Materials developments are opening new applications. One of these is graphene that is a one-atom-thick sheet of carbon. This gives very good electrical properties that can be doped to produce semiconductors, sensors, etc. Currently, its cost limits use to research but as the costs come down applications will follow. Other materials include transparent conductors such as Pedot, the conductivity of which has been further improved by adding silver nanowires or carbon nanotubes. Inks based on this technology are now commercially available.

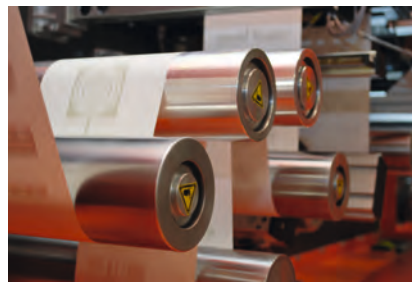
Printing is finding its way into electronic applications: some large area OLEDs use gravure printing during manufacture; and inkjet is used in CDT's small flexible displays for mobile phones and other devices.

Inks made from nanosilver have achieved good conductivity and low resistance but circuits require sintering, usually by near infrared. Other techniques to improve conductivity include bathless electroplating and catalytic plating.

Printed electronics and functional materials is a major growth area for manufacturing that can create high value added. However, printers need to be aware of the demanding requirements of this domain: printing has to be right first time because the material costs mean waste is hugely expensive; electrons are not as forgiving as the human eye and no current will flow if the line is not continuous and any variation will impact on performance; hickies can either cause short circuits or break circuits, meaning a clean production environment is needed. Printing electronics need to be part of a serious business plan.



*Thin, flexible large area display. Source LG Display/OE-A.*



*Roll-to-roll printing of electronic devices. Source 3D-Micromac AG/OE-A.*



*RF activated smart objects. Source PolyIC/OE-A.*

CONTENT AND IMAGE ON THESE PAGE ARE SOURCED FROM DR. TIM CLAYPOLE, UNIVERSITY OF SWANSEA, AND ORGANIC AND PRINTED ELECTRONICS ASSOCIATION (OE-A).

# Packaging & Labels

30

**Packaging is one of the world's biggest businesses with an estimated worth of around € 500 billion, with printed packaging accounting for about half of this (Metsä Board and PIRA). The packaging and label share of printing is forecast to increase by 15% from 2011 to reach 37% by 2016.**

Global growth in printed packaging is driven by population increases, accompanied by higher urbanisation and economic growth. Food is the biggest growth category in all developing markets, followed by health, cosmetics, consumer, and tobacco categories.

Demand for packaging products is less affected by economic conditions than other sectors but may suffer inventory drawdown in a recession.

## Sustainability

Reducing food waste is the primary packaging driver in developing countries. Estimated food waste in some Eastern European countries is around 70% compared with only 17% in Germany — this illustrates the scope for improvement.

Consumer groups are increasing their focus on food waste as a global issue: in developed countries the problem comes from buying too much and throwing it away too soon; in less developed countries food waste starts in the fields and continues with poor packaging.

Ethical questions are becoming even more important. Consumer environmental concerns are a primary influence on the choice of substrates in developed countries, with criteria including safety, energy, greenhouse gas emissions, water use and traceability of materials. Part of the environmental response is lighter weight packaging that also provides economic benefits.

Recycling is essential to meet not only consumer preferences but also legal, environmental, and economic needs. Paper waste scores highly with a 69% European recovery rate in 2011, followed by 66% for beverage cans.

## Good

PACKAGING IS SUSTAINABLE, SAFE, ECONOMICAL AND PROVIDES AN EFFICIENT MARKETING TOOL

*Consumer environmental concerns are a primary influence on the choice of packaging.  
Photo: Metsä Group.*







*Forest based fibre is the best raw material for most good packaging and is also a renewable source, recyclable and decomposable. Photo Metsä Group.*

## Materials

Forest based fibre accounts for 33% of all packaging substrates used by value because it is the best raw material for many packaging needs. Forest based fibre products meet environmental requirements very well as they come from renewable sources, are fully recyclable and decomposable.

Global demand for cartonboards is forecast to grow at around 3% a year in the long term, with higher rates in emerging markets like India, China, Latin America and Eastern Europe. Food packaging accounts for about half of the cartonboard packaging in Europe and it is estimated to grow on average by about 3% per year from 2009 to 2014 (ECMA). The concern over mineral oil migration has increased demand for fresh forest based fibre cartonboard.

## Labels

Labels represent about 4% of the total print market. The growth in developing countries is currently peaking at 30 - 60% a year, while mature markets are stable at 4 - 5%. Labelling demands are similar to those for folding cartons, such as more demanding customer requirements for quality and product recognition.

Labels are required to be of high quality and increasingly use complex Value Added Printing, particularly cold and hot foil stamping, metallised or transparent foil. Printing on presses with up to 13 ink units is not uncommon.

The food sector requires features such as frozen food adequacy, moisture resistance and washability. The trend for bottles, jars and cans is adhesive labels, except beverages for which around 90% continue to use wet labels. There is growth for flexible stretch and shrink sleeves for irregular shapes and in-moulds. An innovation in the pharmaceutical sector is the dry-peel label — this is a multi-layer information carrier.

## Trends

The trends are to more high impact, high quality packaging with more functional demands and positive environmental characteristics.

Packaging and labels are evolving into multimedia Value Added Print information carriers that will continue to use a range of print processes. Smart Technologies will increasingly be used when their cost and application make sense — fraud protection, product tracking, additional information on product use, or for promotion. These techniques will become a feature on intelligent packaging of pharmaceuticals and medicines. RFID and Smart indicators are feasible, but not yet ready to implement on mass-market products.

Safe food packaging and labelling materials and techniques are a universal growth area. Anti-bacterial film should help reduce food waste. In mature markets there is a trend to more single person households that reduces the size of packaging units.

Production will see a continuing trend to shorter runs using multiple processes. Packaging gravure will remain the premium packaging process for tobacco and chocolates. Offset is expected to be stable with most growth expected in flexo. Digital printing will grow from its small share where it is currently challenged by the complex demands of many packaging types.

# VAPack – Value Added Packaging

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## High

SENSORY PERCEPTION OF PACKAGED PRODUCTS INCREASE BRAND RECALL, LOYALTY AND PURCHASE

The 'moment of truth' is if the finished product is purchased by the end-user. There is an almost instinctive value decision based on an individual's sensory and cognitive processes, social and cultural background, experience and habits.

Behavioural research shows that this moment lasts just a fraction of a second, but it determines the long-term market success of a product.

Results from market research and eye-tracking analysis include:

- Packaging with reflective metallic design elements is perceived many times more strongly — particularly in narrow supermarket aisles.
- Identical products in different packages are rated differently by customers in the same environment.

- Even if the selling price is higher, those with value added packaging sell faster than the identical product with poorer packaging.

High sensory perception of packaged products increases brand recall, loyalty and probability of purchase. The Brand Sense study shows that on average product loyalty increases from 28% when only one sense is addressed to 43% when the brand is promoted to two or three senses, and 58% if it touches four or five. The more senses a brand touches, the more the likely customer will make a purchase.

## VAPack is a team affair

The PrintCity Alliance has a dedicated project team for Value Added Packaging whose members come from printing industry suppliers, specialised printers, and designers to develop value added effects. This cross-process group has elaborated a portfolio of sample boxes that focus on the needs of brand owners and designers to help provide increased consumer attraction, enhanced product differentiation, and new opportunities in brand development and positioning. The portfolio of creative cartons is accompanied by 'how to do it' tutorials explaining their techniques.

## Brand Protection

Trade in counterfeit products is estimated at \$1 trillion a year and growing. It is therefore essential for brand owners to select measures with the right balance between protection and its costs. The printing and packaging industry has developed a range of technologies and strategies to minimize counterfeiting. These are structured in 3 levels according to the way the product can be verified:

1. Protection recognition by the human senses: special pigments, inks, thermochromic effects, holograms combined with micro-embossing
2. Simple proofing devices to identify the security element: UV lamps, decoders or magnifiers to make visible special inks, hidden or micro images. Emerging solutions use a smart phone connect to verify unique codes.
3. Special decoder only available to anti-counterfeiting technicians.

Multiple measures are recommended for high value or health sensitive products.



Value Added Packaging cartons developed by the PrintCity project group with accompanying 'how to' tutorials. Copies are available from project members Bobst, ESKO, Hinderer & Mühlich, Kurz, manroland, Marbach, Merck, Metsä Board, Reproflex, Sun Chemical, UPM, UpCode and Weilburger Graphics, or at [info@printcity.de](mailto:info@printcity.de). Source PrintCity.



The PrintCity Fingerprint package integrates brand protection to express the distinctive attributes of a product and facilitate brand recognition in a competitive environment. Photo PrintCity.

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The Biofore Company



connection of competence



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