

310/6

**Economic Development for Physicists from
Developing Countries**

27 November 2006 - 1 December 2006
Trieste - ITALY

***DOING DEALS: RESEARCH COLLABORATIONS - HOW TO
REACH AGREEMENT UNIVERSITY/INDUSTRY MODEL
RESEARCH AGREEMENTS***

**Jane List
The Technology Partnership, plc**

Know Your Market

Jane List

The Technology Partnership

Economic development for physicists from
developing countries

Institute of Physics Workshop

Trieste, Wednesday November 29th 2006

technology: bridge to the future





Know Your Market





Market assessment



technical

commercial

Intellectual property

directories

scientific articles

company financials

trade literature

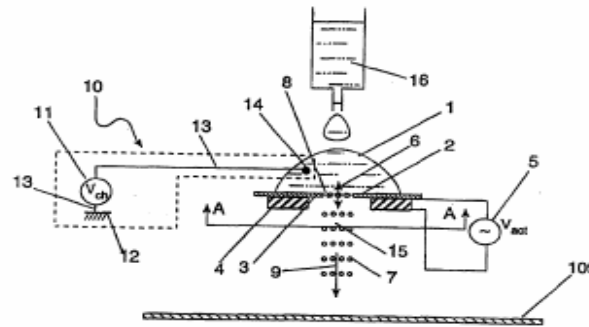
investor reports

legal

market forecasts

government policy

regulatory and standards



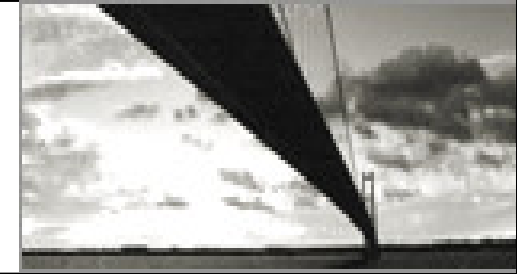


The Technology Partnership (TTP) ...the bridge to business creation





TTP Today



TTP GROUP PLC - a private company, 300 Staff

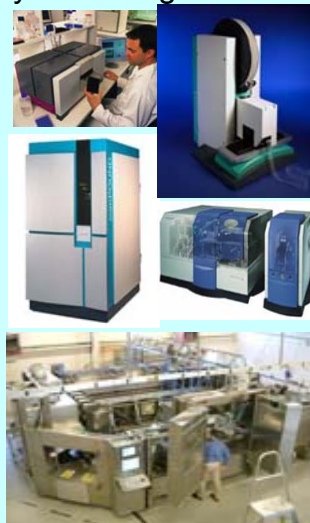
The Technology Partnership:

Product and process development and consulting under contract.



TTP Labtech:

Develops, manufactures and markets instrumentation and laboratory technology. Undertakes bespoke system integration.



Melbourn Science Park



TTP VENTURES:

Invests in external early stage technology companies.



Tonejet:

Digital printing technology.



Consulting services:

Due diligence.
Managing UK nanotechnology program.
Acquisition search.
Etc.

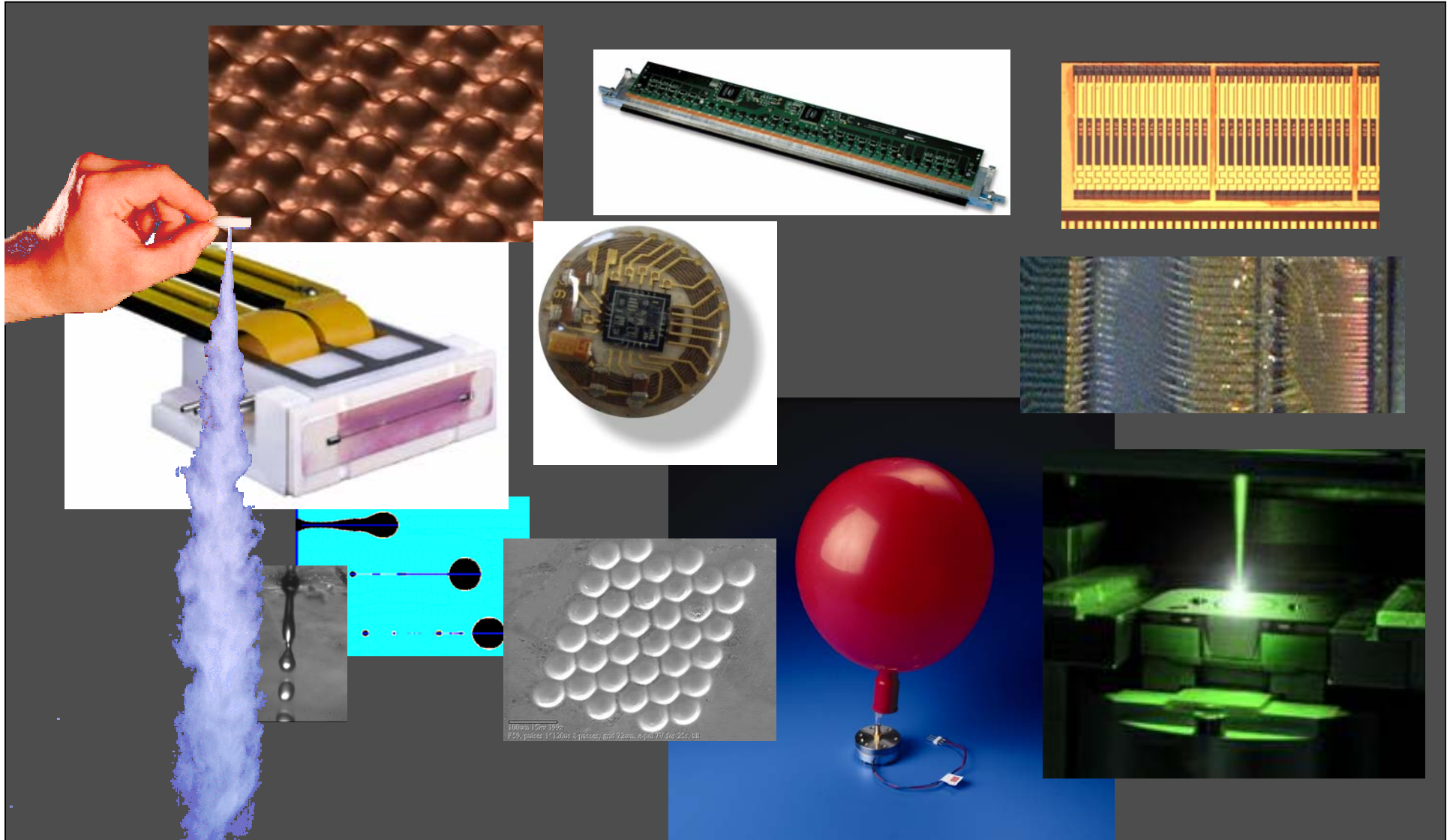


Develop products under contract



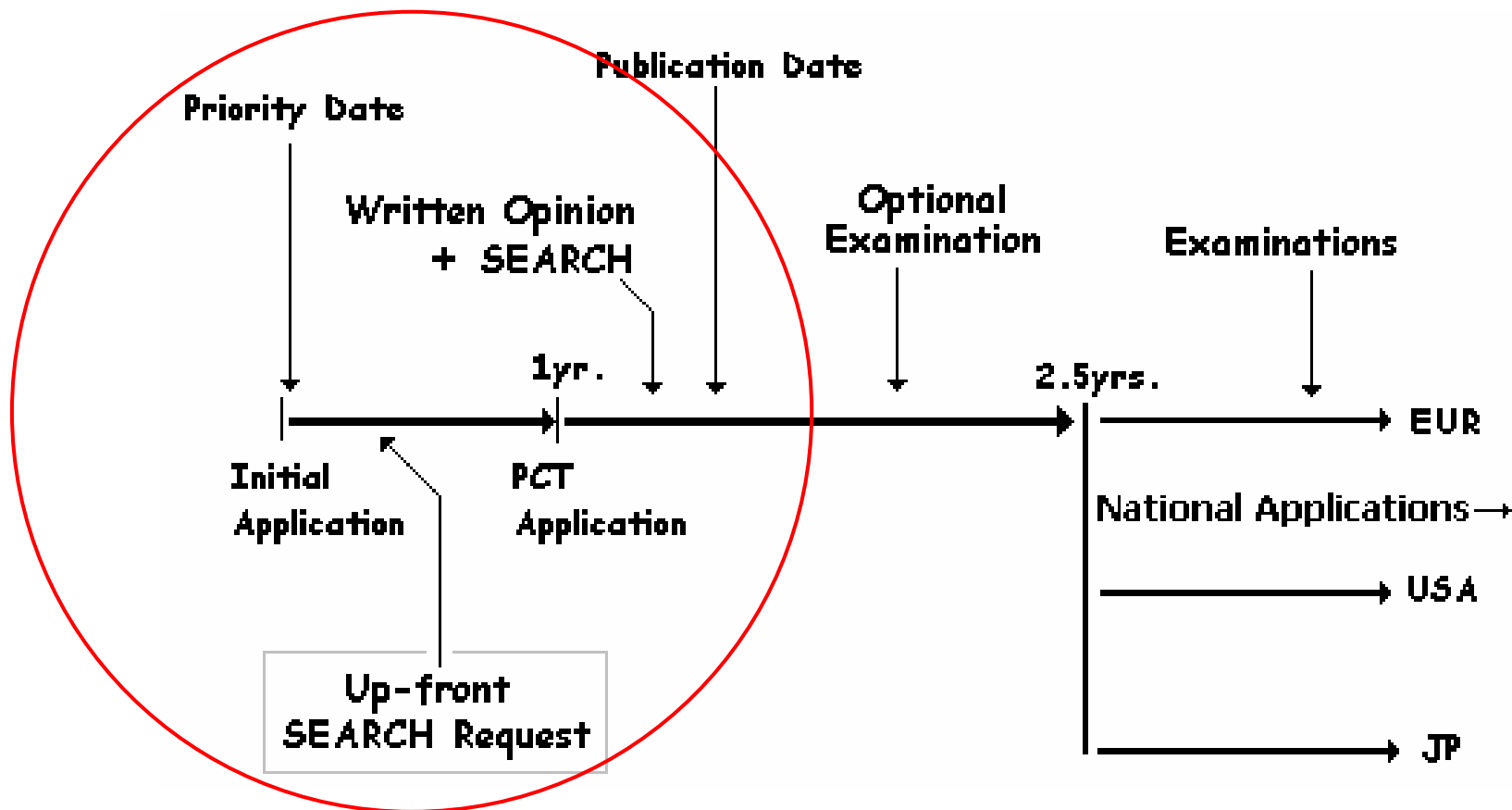


Create and introduce technology



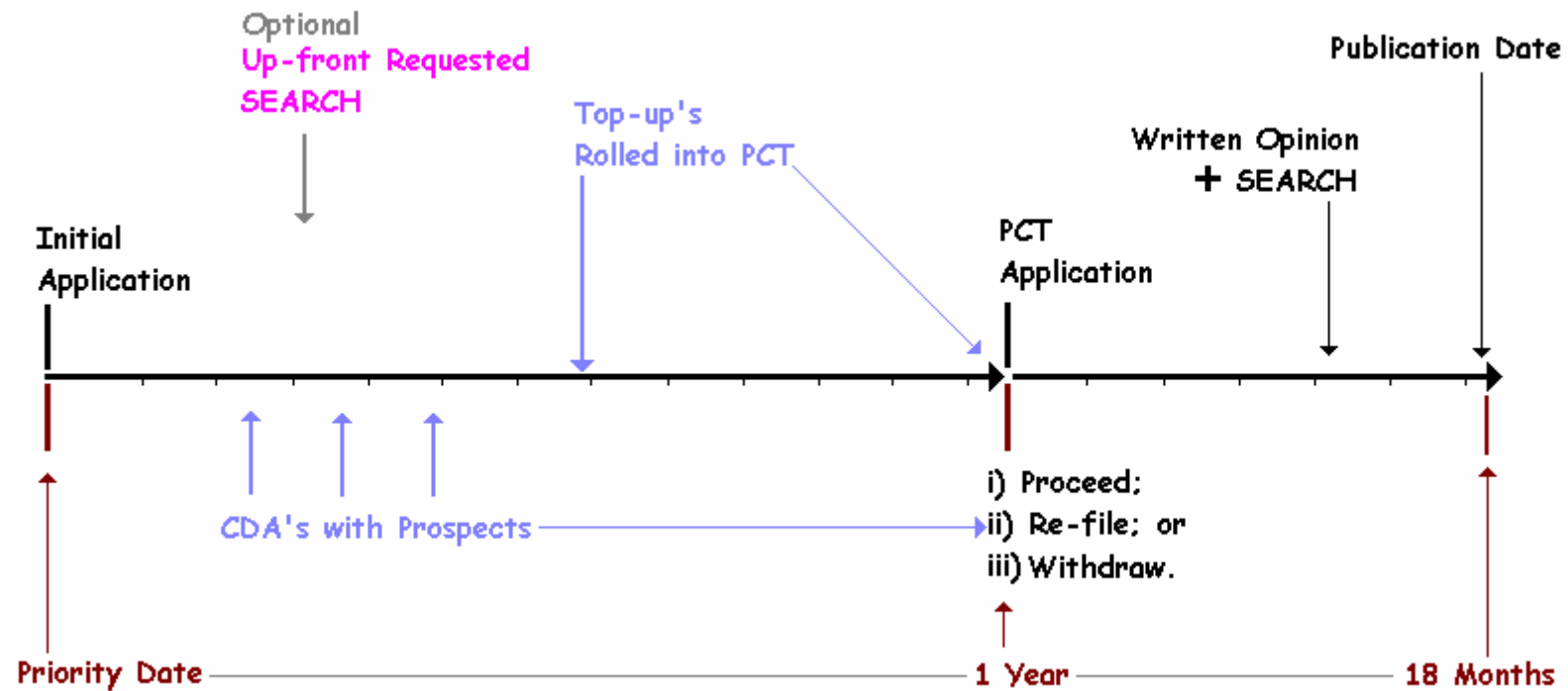


Protecting your invention with Patents





Marketing: First 18 Months





Commercial IP Assessment



Type of IP Assessment

State of the Art

Patentability

Novelty

Prior Art

Freedom to Operate (F2O)

Patent searching

Scientific literature

citation searching

trade literature

conferences

exhibitions

WIPO university initiative <http://www.wipo.int/innovation/en/>

Contact: yumiko.hamano@wipo.int



Commercial IP Assessment



1. Commercial Target - Market Study;
2. IP: i) Establish Protection ?

ii) **Freedom to Operate Assessment:-**

informs development process;

the sooner the better;

reduces risk (for client);

review at product decision points;





Free patent databases

SIPO

STATE INTELLECTUAL PROPERTY OFFICE OF P.R.C

Worldwide patent search

Espacenet:
IP NewsFlash

<http://ep.espacenet.com>
www.ipnewsflash.com

Country patent databases

China:

http://www.sipo.gov.cn/sipo_English/default.htm
for legal status
<http://www.cnpat.com.cn/>
for patent abstracts

Korea:

<http://eng.kipris.or.kr/>
for patent abstracts, full text and legal status

Japan:

<http://www19.ipdl.ncipi.go.jp/PA1/cgi-bin/PA1INIT>
advanced search and number search

US:

<http://www.uspto.gov/>
issued (granted) patents, applications and legal status



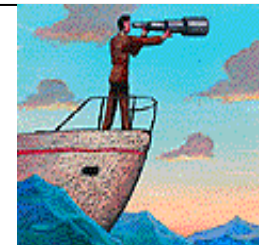
中国专利信息中心

China Patent Information Center

- 中心邮箱
- CIFIC简介
- 留言簿



Understanding patents: espacenet document view



APPARATUS AND METHOD FOR SUPPLYING MATERIAL TO A SUBSTRATE

Patent number: EP0837742
Publication date: 1998-04-29
Inventor: HUMBERSTONE VICTOR CAREY (GB); SANT ANDREW JONATHAN (GB); BLAKEY DAVID MARK (GB); TAYLOR PETER JOHN (GB); JANSE VAN RENSBURG RICHARD WIL (GB)
Applicant: TECHNOLOGY PARTNERSHIP (GB)

Also published as:

WO9702903 A
US6127082 A1
EP0837742 A0
EP0837742 B1
AU702529B B2

Classification:
-international: **B41J2/02; B05B5/025; B05B17/06; B41J2/025; G03G9/16; G03G15/05; B05B5/025; B05B17/04; B41J2/015; G03G9/00; G03G15/05;**
- (IPC1-7): B05B17/06; B05B5/025; B41J2/025; G03G9/16
-European: G03G9/16; B05B5/025; B05B17/06B5; B05B17/06B5F; B41J2/025

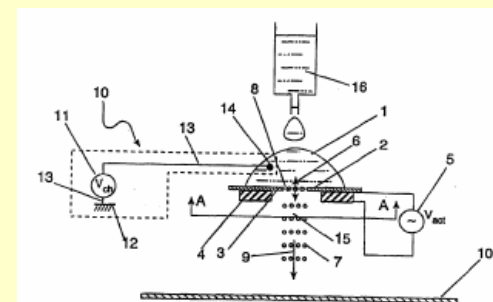
Application number: EP19960924067 19960711
Priority number(s): WO1996GB01671 19960711; GB19950014335 19950713

Abstract not available for EP0837742

Abstract of correspondent: **WO9702903**

An apparatus and method are described for supplying material to a substrate (109). The apparatus includes a member (3) having a surface with a plurality of features (8) which locate, in use, menisci of a liquid (1) supplied to the member. An actuator (4) induces mechanical vibrations within the liquid located by the features to cause liquid droplets (7) to be sprayed. Liquid (1) is supplied to the member and electrical charge is supplied to the liquid by, for example, an electrode (14). Electrical charge or potential is also supplied to the substrate (109) so that the droplets are directed towards the substrate to deposit material thereon.

Data supplied from the **esp@cenet** database - Worldwide





Understanding patents: front page view

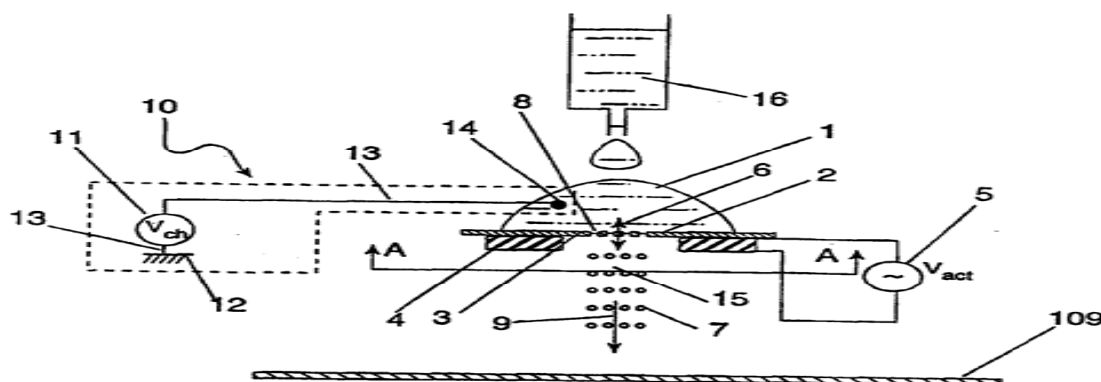


PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

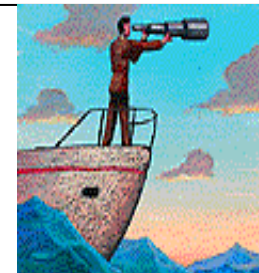


INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶: B05B 17/06, 5/025, G03G 9/16, B41J 2/025		A1	(11) International Publication Number: WO 97/02903
(21) International Application Number: PCT/GB96/01671		(43) International Publication Date: 30 January 1997 (30.01.97)	
(22) International Filing Date: 11 July 1996 (11.07.96)		(81) Designated States: AU, CA, CN, JP, US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).	
(30) Priority Data: 9514335.0 13 July 1995 (13.07.95) GB		Published With international search report.	
(71) Applicant (for all designated States except US): THE TECHNOLOGY PARTNERSHIP PLC [GB/GB]; Melbourn Science Park, Cambridge Road, Melbourn, Herts SG8 6EE (GB).			
(72) Inventors; and (75) Inventors/Applicants (for US only): HUMBERSTONE, Victor, Carey [GB/GB]; 22 Greenfield Close, Stapleford, Cambridge CB2 5BT (GB). SANT, Andrew, Jonathan [GB/GB]; 54 Chalmers Road, Cambridge CB1 3SX (GB). BLAKEY, David, Mark [GB/GB]; 5 Pentland Place, Metcalfe Road, Cambridge CB4 2DX (GB). TAYLOR, Peter, John [GB/GB]; 18 Marshall Road, Cambridge CB1 4TY (GB). JANSE VAN RENSBURG, Richard, Wilhelm [GB/GB]; 16 Colesfield, Longstanton, Cambridge CB4 5BW (GB).			
(74) Agent: GILL JENNINGS & EVERY; Broadgate House, 7 Eldon Street, London EC2M 7LH (GB).			
(54) Title: APPARATUS AND METHOD FOR SUPPLYING MATERIAL TO A SUBSTRATE			
			
(57) Abstract An apparatus and method are described for supplying material to a substrate (109). The apparatus includes a member (3) having a surface with a plurality of features (8) which locate, in use, menisci of a liquid (1) supplied to the member. An actuator (4) induces mechanical vibrations within the liquid located by the features to cause liquid droplets (7) to be sprayed. Liquid (1) is supplied to the member and electrical charge is supplied to the liquid by, for example, an electrode (14). Electrical charge or potential is also supplied to the substrate (109) so that the droplets are directed towards the substrate to deposit material thereon.			



How to search patents: The basics



Classifications

IPC	www.wipo.int/classifications/ipc/ipc8/?lang=en
ECLA	http://v3.espacenet.com/eclasrch
USPTO	http://www.uspto.gov/go/classification
JP F TERMS	http://cxp.paterra.com/fterms.html

Keywords

synonyms

Company / Assignee Names

of known competitors, prospects

Author /Inventor Names

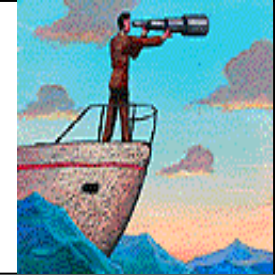
of known innovators

patents not always in company name

Use Resources in Own National Patent Office Library



Information from patents

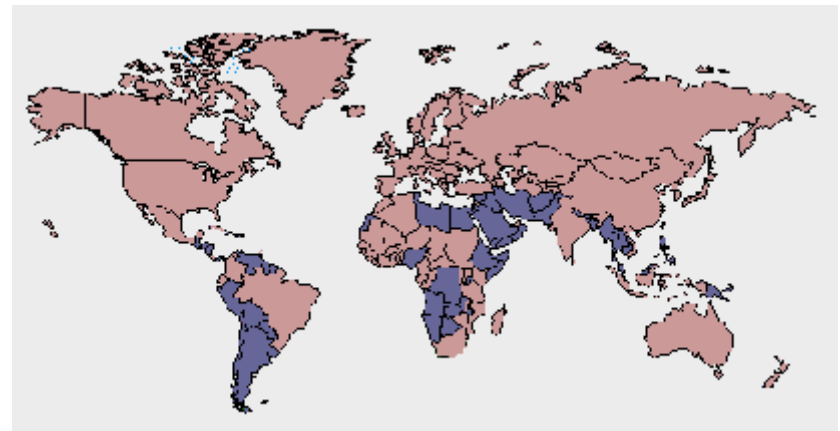


Who else is patenting in your area?
potential clients
competitors

What makes your invention special?

Legal status of patents

Geographic coverage





Sources for technical literature searching

Free internet patent office databases

Proprietary databases

- abstracts databases

- citation searching

Trade literature

Company information

- product literature and websites

- patents

- new product announcements (press releases)

University departments and library catalogues

- www.bl.uk

Thomson web of Science

- <http://scientific.thomson.com/products/solutions/nfp/>





Sources for scientific research



Online databases abstracting services
for fast, powerful search with indexing tools

Scientific publishers

Elsevier www.elsevier.com
[ScienceDirect](#), [MD Consult](#), [Scopus](#),
bibliographic databases, and online reference works.

IoP, IEEE, SPIE, CAS
search free, pay to download article
library subscription

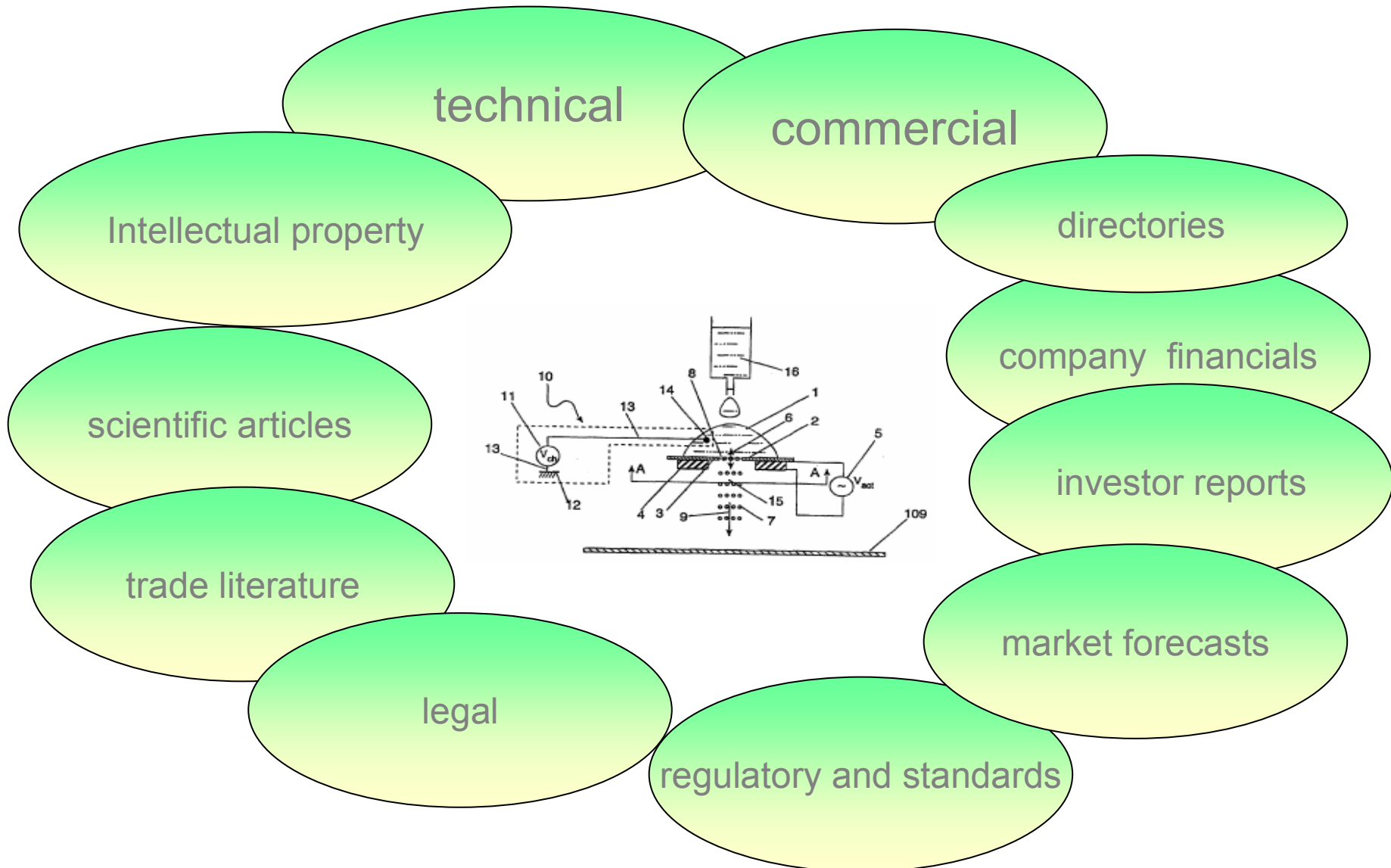
Libraries national, specialist and university collections,
search, lending and document supply

Conferences
web agenda, proceedings

Trade organisations



Market assessment





Business: commercial and marketing





Market assessment



- Market research
 - Identify key players
 - Where and what are the Key Markets?
 - Spot any competing products / competitor companies
- Opportunities
- Pricing information
 - value of your invention
- Forecasts
 - Volume
 - Pricing trends





Market research on the web



Market research

www.marketresearch.com

Cost: free to search

Content: 110,000 market research reports from over 550 leading global publishers.
new product trends or competitive analysis of a new or existing market.

Alerts: Yes

Mindbranch

www.mindbranch.com

Cost:

Content: industry and investment research from more than 400 independent research firms since 1992.
>90,000 market research reports, competitive business intelligence.

Alerts:

Research and markets

www.researchandmarkets.com

Cost:

Content: around 380,000 market research reports and industry newsletters from specialist research firms
and niche market analysts publishers in October 2006.

Browse by industry categories, or search by a specific keyword or phrase.
view title to see more information including abstracts, executive summaries,
samples and indexes/tables of contents.

Alerts: Yes



Market Research (Profound®)



Thomson business intelligence

www.profound.com

Cost: Subscription based service. Free to search. Purchase section or table of report

Content: 5,000 new reports added each month.
250,000+ reports from 170+ information providers.

Cutting-edge market research reports from top syndicated providers
Economic analyses and forecasts from around the world
Financial reports on more than 11,500 public and private companies
Investment briefings on 9,000 companies
Concise briefings on industries and countries
Articles from specialized research and industry journals

Alerts: Yes



Technical market research from individual publishers

Frost and Sullivan

www.frost.com

Cost: very expensive (purchase sections from Profound®); available in some libraries.

Content: Global scope and coverage of high-tech subjects

Alerts: Yes

The Freedonia Group

www.freedoniagroup.com

Cost: register to access some information free, purchase complete report, or single pages (\$30), table (\$40).

You may freely search and browse the Freedonia Group web site.

Content: publishes more than 100 industry research studies annually, industry analysis provides an unbiased outlook and includes product and market forecasts, industry trends, threats and opportunities, competitive strategies, market share determinations and company profiles. can browse by categories or search keywords and review the introductions to reports free.

Alerts: Yes



Market research for specific industry sectors

ARC Advisory Group

<http://www.arcweb.com>

Founded in 1986

market data, reports and forecasts for manufacturing and supply chain solutions coverage of technology from plant floor sensors and automation to production, design, and business systems makes us the go-to firm for manufacturers around the world.

IDC

<http://www.idc.com>

provider of market intelligence, advisory services, and events for the information technology, telecommunications, and consumer technology markets.

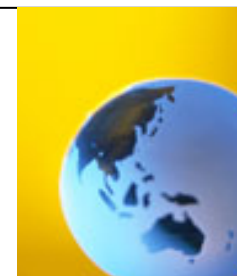
Over 850 IDC analysts in 50 countries provide global, regional, and local expertise on technology and industry opportunities and trends.

For more than 42 years, IDC has provided strategic insights to help our clients achieve their key business objectives.

IDC is a subsidiary of [IDG](#), the world's leading technology media, research, and events company.



Market research for specific regions



Asia Pacific Research Group www.aprg.com

Cost: Yes

Content: covering the technology and telecommunication sectors in Asia Pacific region.

For 15 years has covered the mobile services and mobile content markets in China, Vietnam, Indonesia, India, Thailand, Philippines, Pakistan for mobile data services, 3G, Broadband, WiMax, IT, Digital Music.

Latest subscriber trends and forecasts.

Emerging market trends for the mobile industry in the Asia Pacific region.

New research on mobile digital music, Broadband subscribers, Mobile subscribers, 3G application services, Mobile VAS services.

Alerts: Yes



Example F & S Technical Insights Report

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Executive Summary

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Example F & S Technical Insights Report:
Patent Analysis, SWOT Analysis, Analyst Insights, cont:



With outsourcing also comes the threat of duplicating the technology and the product, thereby flooding the market with low cost products that are mock-ups of the original.

	Opportunities	Threats
Strengths	<ul style="list-style-type: none"> - Funding - R&D Efforts - Stable Technology - Diverse Future-oriented Applications 	<ul style="list-style-type: none"> - Fragmented market - Outsourcing (lower production costs) - Legislation
Weaknesses	<ul style="list-style-type: none"> - Lack of collaboration 	<ul style="list-style-type: none"> - Outsourcing leading to duplication

Figure 7-5. SWOT Analysis

Source: Frost & Sullivan



Example F & S Technical Insights Report: Key Industry Participants



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Bernie Brainford, RISO Inc., Manager, Marketing & Technical Communications, 300 Rosewood Drive, Suite 210, Danvers, MA. E-mail: brainford@riso.com.

Bruce Butler, Mac Dermaid ColorSpan, Director, Marketing, MacDermid ColorSpan Inc., 7090 Shady Oak Road, Eden Prairie, MN 55344. Phone: 952-944-9457. E-mail: bruce.butler@colorspan.com.

Rak Kumar, President & CEO, Raster Printers, Inc., 908 Industrial Ave., Palo Alto, CA 94303. Phone: 650-739-0771. Email: rkumar@rasterprinters.com.

Stephanie Ryan, Corporate Contact, Konica Minolta., One Magnum Pass, P.O. Box 81250, Mobile, AL 36618. Phone: 251-633-4300. Ext. 2473. E-mail: stephanie.ryan@bpus.konicaminolta.us.

Philip Easton, Product Director, Commercial Printing, Ink Jet Division, Domino UK Ltd., Bar Hill, Cambridge, CB3 8TU. Phone: +44-0-1954-782551. Fax: +44-0-1954-782874.
E-mail: Philip.Easton@domino-uk.com.



Example F & S Technical Insights Report: Decision Support Databases



Decision Support Database

Decision Support Database Tables

Business PC Installed Base--World (1999-2006)

Frost & Sullivan's electronics and semiconductors decision support database service offers a valuable collection of tables that provide historic and forecast data for the semiconductor market.

Table 8-1 shows global business PC installed base (million) for the period 1999 to 2006.

Decision Support Database									
Table Business PC Installed Base (Million)									
Region / Country	1999	2000	2001	2002	2003	2004	2005	2006	CAGR % (2003 - 2006)
North America									
Canada	7.0	7.2	8.2	9.0	9.9	10.1	10.2	10.3	1.28
Mexico	1.7	2.3	3.1	3.8	4.2	4.7	5.1	5.5	9.42
United States	81.7	86.4	97.3	101.9	105.6	108.4	109.7	110.7	1.59
TOTAL	90.3	95.9	108.6	114.8	119.6	123.1	125.0	126.4	1.86
Latin America									
Argentina	0.8	1.2	1.4	1.5	1.6	1.7	1.8	1.8	4.13
Brazil	2.6	3.8	4.6	5.0	5.4	5.8	6.1	6.6	6.79
Chile	0.4	0.6	0.6	0.7	0.8	0.8	0.8	0.9	4.62
Peru	-	-	-	-	-	-	-	-	-
Venezuela	0.3	0.4	0.4	0.5	0.5	0.5	0.6	0.6	6.50
TOTAL	4.1	5.9	7.1	7.7	8.3	8.8	9.3	9.9	6.07
Asia - Pacific									
Australia	3.8	4.4	5.0	5.5	5.7	5.9	6.1	6.3	3.13
China	2.7	3.9	6.6	8.6	10.9	13.2	15.7	18.6	19.49
Hong Kong	1.2	1.4	1.6	1.7	1.7	1.8	1.8	1.9	2.40
India	0.8	1.4	2.3	3.0	3.4	4.0	4.5	5.0	13.18
Indonesia	0.2	0.2	0.3	0.4	0.5	0.5	0.7	0.7	13.76
Japan	14.6	20.0	26.4	26.9	27.2	27.5	27.8	28.0	1.00
Malaysia	0.5	0.8	1.1	1.2	1.4	1.5	1.7	1.8	9.98
New Zealand	0.6	0.8	0.8	0.9	1.0	1.0	1.1	1.1	5.40
Philippines	0.1	0.2	0.3	0.3	0.4	0.5	0.6	0.7	15.98



Investor research



Investext

www.thomsonbusinessintelligence.com

over 2 million company reports, plus industry reports

Morgan Stanley: Technology Research

www.morganstanley.com/institutional/techresearch

technology-related research reports.

FREE

Consider this site when you are researching companies, industries, and trends in high technology markets, particularly those related to the Internet, and when you want an authoritative market study.





Company information



- Financial information
 - sales, trends, profit/loss
- Annual reports
 - future direction
- R&D
 - budget
- Key Markets and Products
 - value and volume
- Key personnel
 - **whom to talk to**
- Pricing information





Company research



Hoovers

www.hoovers.com

Kompass

www.kompass.com

*2M companies in 70 countries referenced by 54,000 product & service keywords
750,000 trade names and 3.5M executive names*

Bureau van Dyke

www.bvdep.com/en/companyInformationHome.html

Thomson

www.thomsonbusinessintelligence.com

DataStar on the Web

www.datastarweb.com

Company Annual Reports

Carol

www.carol.co.uk

direct links to the financial pages of listed companies in Europe and the USA.
including companies' balance sheets, profit & loss statements, financial highlights
etc.



Company financials:

D&B



HI Europe Standard Vat Number: 02368510406;
 Year of foundation: 1995;
 This company is: an exporter public a headquarters/parent.

PA Immediate Parent Name: TECHNOGYM SPA;
 Immediate Parent Duns Number: 45-930-9993;
 Immediate Parent Country: ITALY
 Immediate Parent Geographic Area: Europe;
 Domestic Ultimate Name: TECHNOGYM SPA;
 Domestic Ultimate Duns Number: 45-930-9993;
 Global Ultimate Name: TECHNOGYM SPA;
 Global Ultimate Duns Number: 45-930-9993;
 Global Ultimate Country: ITALY
 Global Ultimate Geographic Area: Europe.

EM Employees here: 592 (actual)
 Employees total: 592 (actual).

FI Sales (ECU): 171,924,887 (actual)
 Net Worth (ECU): 23,299,953 (actual)
 Profit/Loss (ECU): 11,894,002 (actual)
 Sales (US Dollar): 223,313,236
 Net Worth (US Dollar): 30,264,309
 Profit/Loss (US Dollar): 15,449,119

Year of latest accounts: 20041231. ED 20060103.



Business and Trade press



Internet search engines www.google.com

DataStar on the Web www.datastarweb.com

FT www.ft.com

Nikkei Weekly www.nni.nikkei.co.jp/AC/SEARCH/search.html

Thomson www.thomsonbusinessintelligence.com

Library trade literature collections

Business information websites and blogs

Monthly newsletter BestBizWeb Eletter www.bestbizweb.com

free sites for company, business information.



DataStar on the Web:

trade journal article



Accession number & update 20280789 20060425.
Title **Thinking outside the box: forecasted trends in future package printing.**
Author(s) Brunton-M.
Source Folding-Carton-Ind, vol. 33, no. 2, Mar.-Apr. 2006, pp 16, 18-22.
Pub.year 2006.
Abstract

There may be room for only 10-12 large dedicated carton makers in the UK market, and the 120 or so smaller producers are facing low profits and threats from alternative types of packs. They need to consider innovative structural and graphical designs that customers in the stores will notice and choose, and to broaden their operations. This means more investment in offset printing to achieve graphic impact, and press workflows are now being designed to suit individual customer requirements. Other alternatives to offset lithography include narrow web flexography, short run gravure, screen printing and digital printing, and they should be considered. The lithographic lamination sector is another area where carton makers could enter with investment.

Point of sale (POS) displays are a market worth EUR1.4bn and are probably the still most cost effective way of attracting customers' attention. While the corrugated sector is favoured by POS, carton makers could find opportunities in multi-material displays that incorporate cartonboard facings and corrugated hoods. Shelf ready packaging again favours corrugated, but there are opportunities for light products such as confectionery and health care. On substrates, the industry should focus on cartonboard texture and finishes, and research is being done on more tactile packaging. Extensible board can be blow moulded to give an embossed appearance, see through cartons are another growing market, while mixed materials packaging is worth considering. Finally, a fulfilment service, involving contract packing and repacking as an extension of the carton making operation, is a way of adding extra value as a one stop shop.

Language EN.
Publication type J Journal article.
File segment PK, PP.
Entry date Issue date: 0605, PIRA date: 0615.



Company financial research



Company Annual Reports and accounts

Carol

www.carol.co.uk

direct links to the financial pages of listed companies in Europe and the USA.
including companies' balance sheets, profit & loss statements, financial highlights etc.

Hoovers

www.hoovers.com

Industry categories, competitor company lists, management information, latest accounts USA.

Official financials

USA (SEC Edgar) www.sec.gov (10K & 10Q)

UK (Cos Hous Direct) www.companieshouse.gov.uk

European (DataStar) www.datastarweb.com

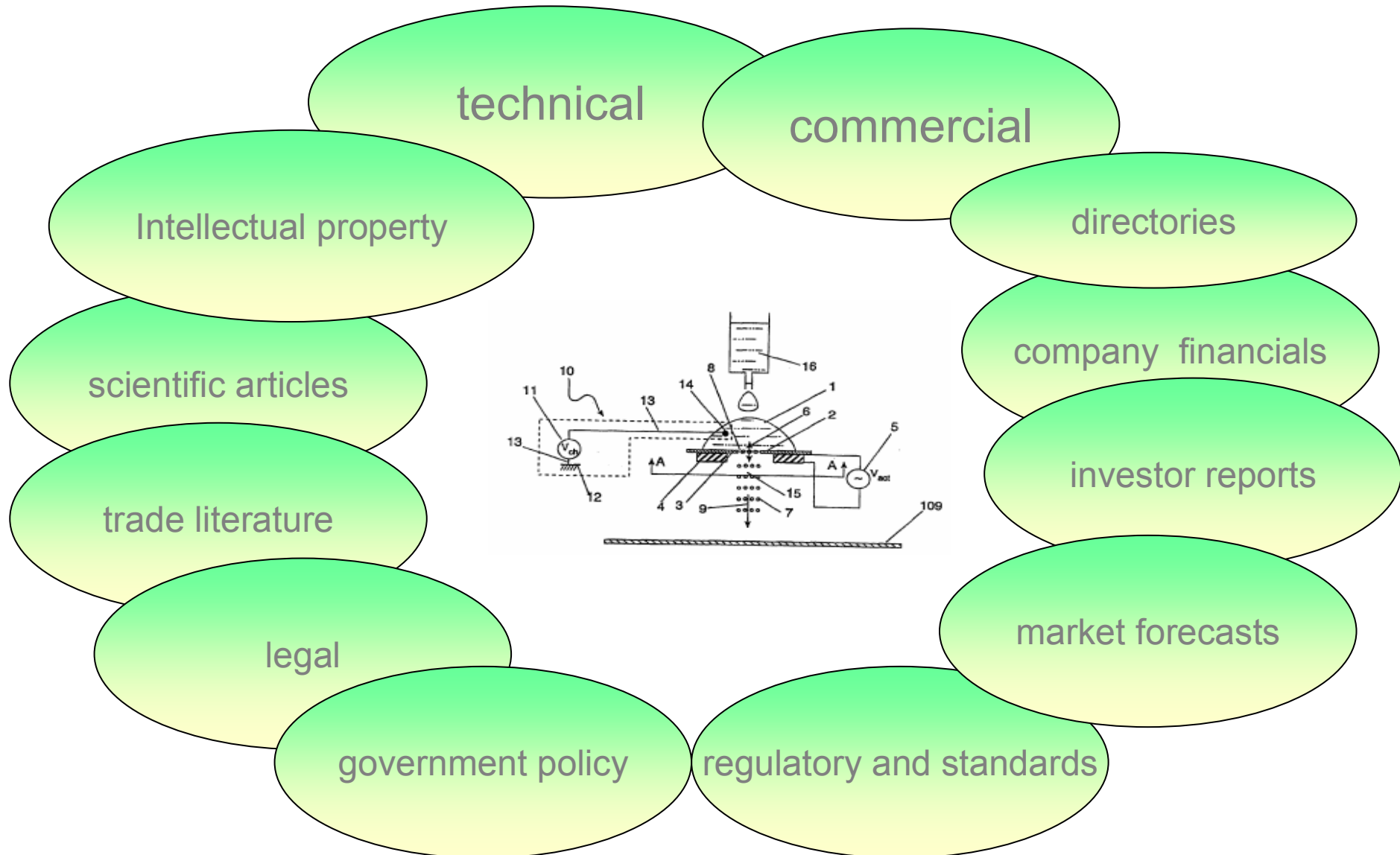
Credit reports

Dun & Bradstreet www.dnb.com

global company database



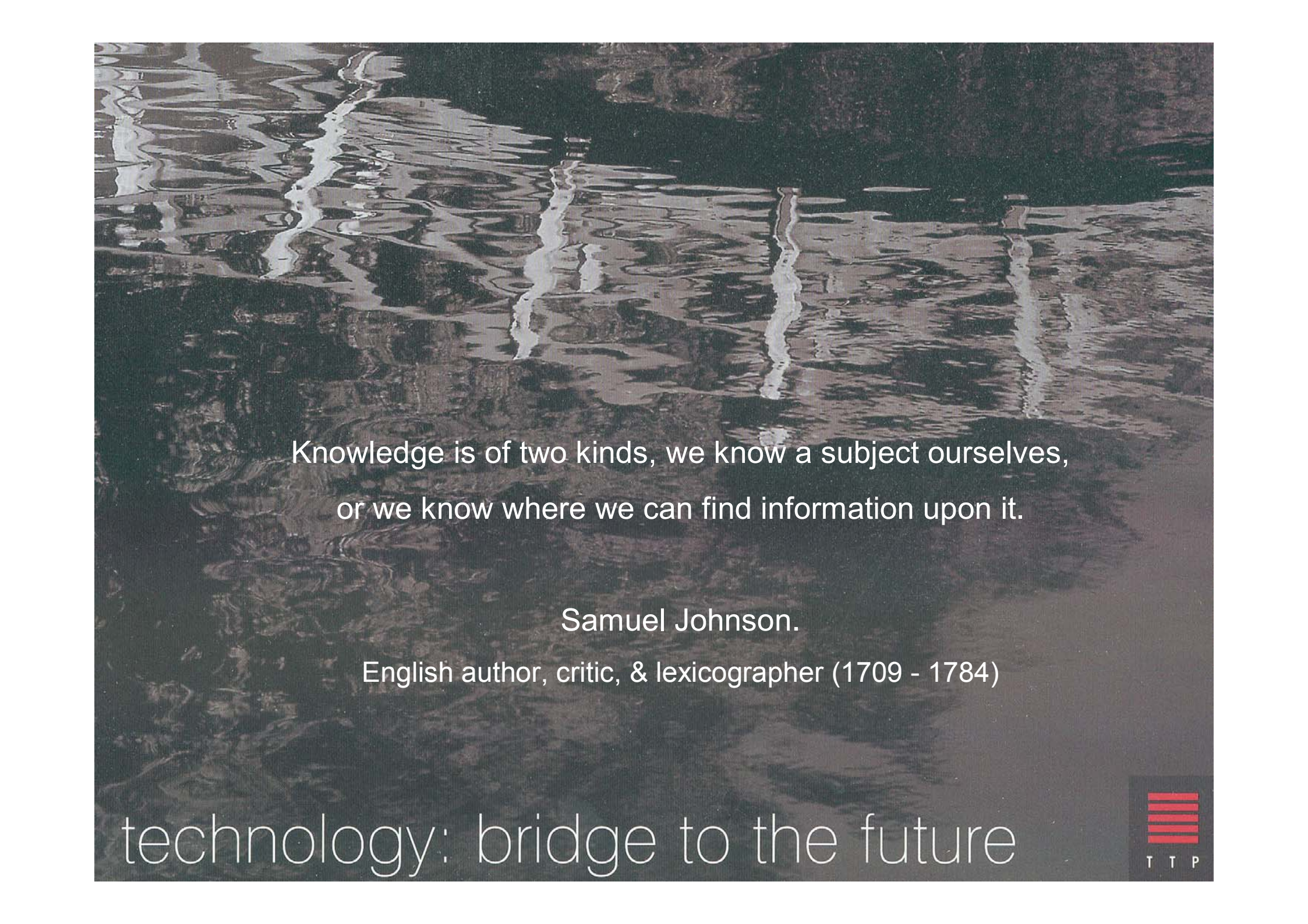
Market assessment





Know Your Market





Knowledge is of two kinds, we know a subject ourselves,
or we know where we can find information upon it.

Samuel Johnson.

English author, critic, & lexicographer (1709 - 1784)

technology: bridge to the future



T T P



Example F & S Technical Insights Report.

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Example F & S Technical Insights Report: Key Findings: Other Adoption Drivers



Up until recently, inkjet printing was primarily used in the domain of business printing. However, this technology has found favor among a host of completely diverse applications that it could herald a new era for this quaint technology.

Some of the application areas that hold tremendous promise are:

- **Printed electronics**
- **3D printing (Rapid prototyping)**
- **Organ printing**

While the first two application areas have seen quite a bit of commercial activity over the last couple of years, the last application: organ printing, could have a tremendous impact on the **healthcare industry**. Imagine being able to print whole organs, and the impact it could have on the ageing population as well as the millions of people in want of new organs.

This technology has conducted a few trials and is undergoing further extended trials to understand its feasibility in the long term. From a commercialization perspective, this technology could hit the market in the next six to eight years, if a collaborative effort is given importance.

On the whole, printing as a technology has seen many technological strides. It is now the turn of the manufacturing processes to make such strides. Outsourcing of manufacturing and even R&D to lower-cost countries provides the best opportunity for larger corporations that envisage a lower equipment cost, thereby increasing their value in the marketplace.



Example F & S Technical Insights Report: Patent Analysis, SWOT Analysis, Analyst Insights



SWOT Analysis

Despite the onslaught on electronic-based media, there has been a resurgence in the print media over the last couple of years. Advertising, the requirement for better print quality, color print, and lower product cost are some of the factors driving this industry forward. However, on closer inspection, one can notice a strong drive for technological innovation. From an external/market perspective, there seem to be some promising signs for these technologies.

Strengths

The two most important strengths that the printing domain has are:

- Presence of large, industry leading participants.
- Ability to conduct industry leading R&D efforts and the ability to back it up

financially.

Each of these above aspects has helped create solutions that are 'future-ready.' Companies such as HP, Xerox, Canon, and Lexmark have continually strived to cater to the emerging needs of the end customer by developing both core technologies and incremental innovations. These have helped create a continuous stream of increasingly capable solutions targeted at both the high-end and low-end customer.

The industry as a whole is also fairly certain about future growth options and the relevant R&D requirements to cater the same.



Example F & S Technical Insights Report: Inkjet Printing: Patents Filed



In the filed section of the patents, **Silverbrook** seems to have the most number of patents with a total of 118 (of the 269 in total for the time period 2004 to 2006) amounting to 44%. Brother (Nagoya, Japan) comes in a close second with a total of 44 patents or 16% of the total patents filed.

Some of the key areas that Silverbrook has concentrated on include:

- The use of micro-electromechanical systems (MEMS) for controlling the actuation of the nozzles themselves.
- Printhead safety measures to enhance the life of the system.
- However, the most interesting of all the patents is the one that enables the incorporation of a printer into a personal digital assistant (PDA). Bearing application number 20060216094, this application is unique and could provide mobile users with the ability to print while on the move. Though it would lack high end features, the sheer invention could lead to further improvements.

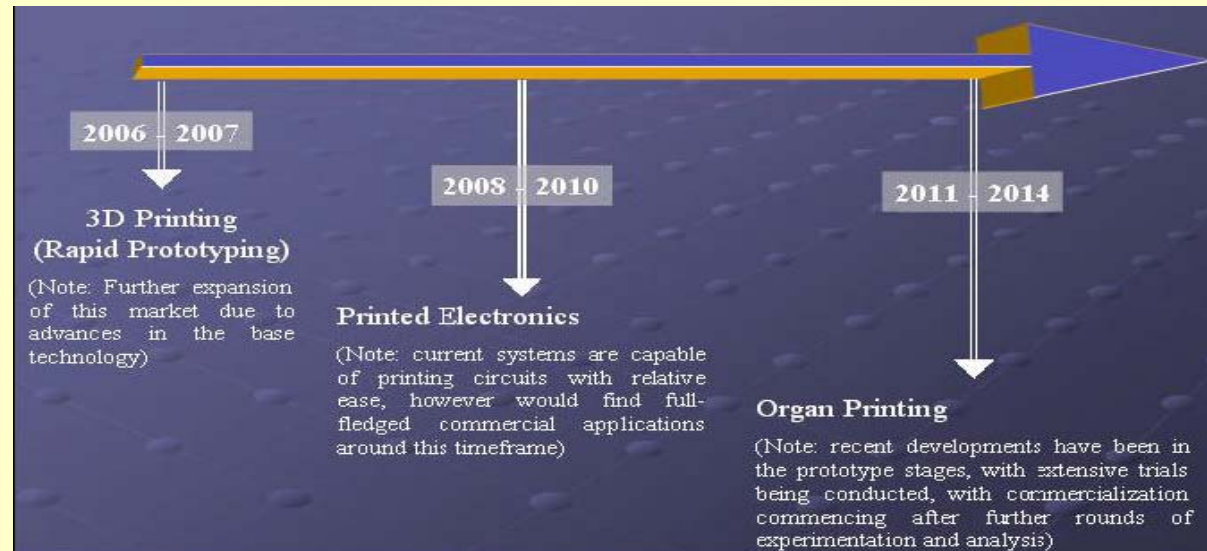
The most interesting aspect amongst the filed patents is the three patents from Lexmark. Each patent corresponds to a completely different application for inkjet printing. **Printing of electroluminescent displays, RFID tags, and conductive inks suggests the ability of Lexmark to cater to the next generation application of inkjet printing.** Each of the above three segments are emerging, with extensive commercialization expected in the next four to eight years (depending on the type of application involved)



Example F & S Technical Insights Report: Key Findings: Laser Printing



Laser printing, due to its higher price, has long been restricted to document printing. However, recent developments (from Xerox, HP, and other leading players) have ensured this technology's availability to a larger market audience, purely by reducing the prices of their products, without compromising on quality. Business documentation has long been the stronghold of laser printing. However, the basic technology is also finding applications in food and beverage, packaging, electronics as a coding device, to help with the traceability of each of these commodities. Traceability is becoming an increasingly important aspect, especially for food items and perishable items, where coding of the date and other related information is critical. This technology is also slowly crossing over to the commercial printing domain, giving stiff competition to the age-old offset printing technology. With its ability to print crisp, clear images with high resolution, its application in the commercial large format printing domain should not come as a surprise.





Example F & S Technical Insights Report: Key Findings: Counterfeiting



This is a critical aspect, especially in the currency segment, where microprinting is essential to ensure the legitimacy of currency notes. With improving imaging technology, scanning abilities, and high-end printers, ensuring greater security measures is becoming a stumbling block for this domain.

Micro-printing from Xerox is one such technological innovation that helps to reduce the chances of counterfeiting. Printing very minute details onto documents (or currency notes) is becoming the norm, which is aided by such a development.

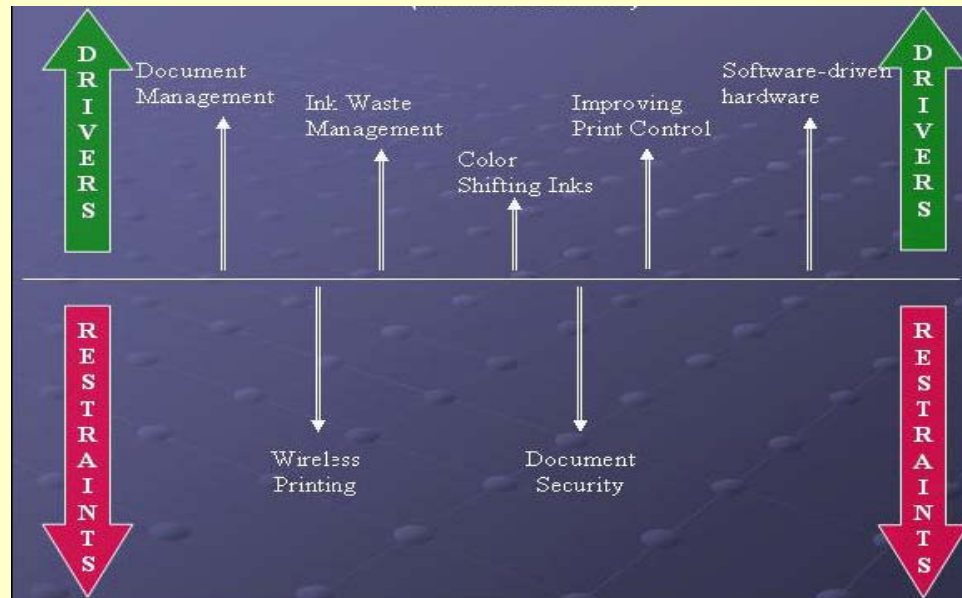


Figure 3-1. Technology drivers and challenges

Source: Frost & Sullivan



Example F & S Technical Insights Report: Inkjet Printing: Patents Filed (cont.)

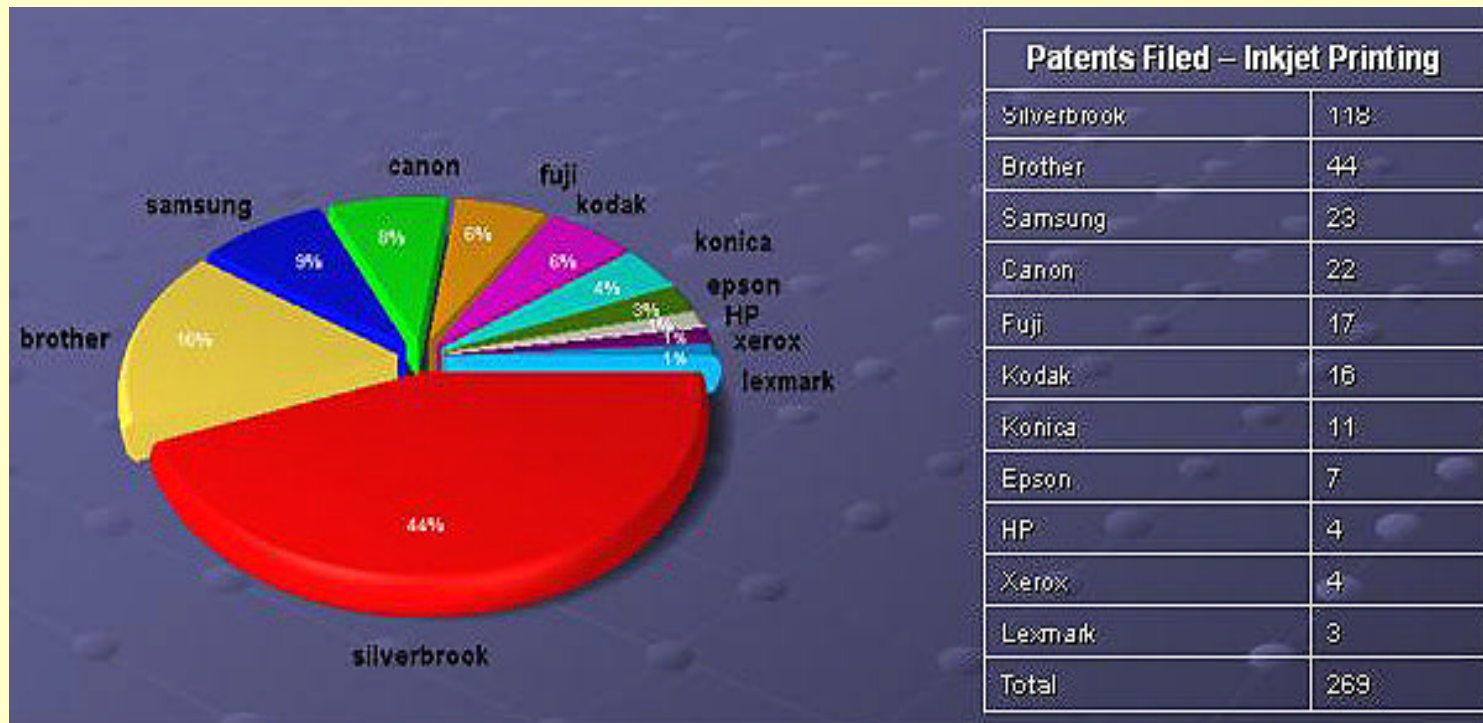


Figure 7-2. Patents file--Inkjet printing.
Source: Frost & Sullivan