W(h)ither the patent information professional?

Stephen Adams,

Magister Ltd.

www.magister.eu

Defining our terms…

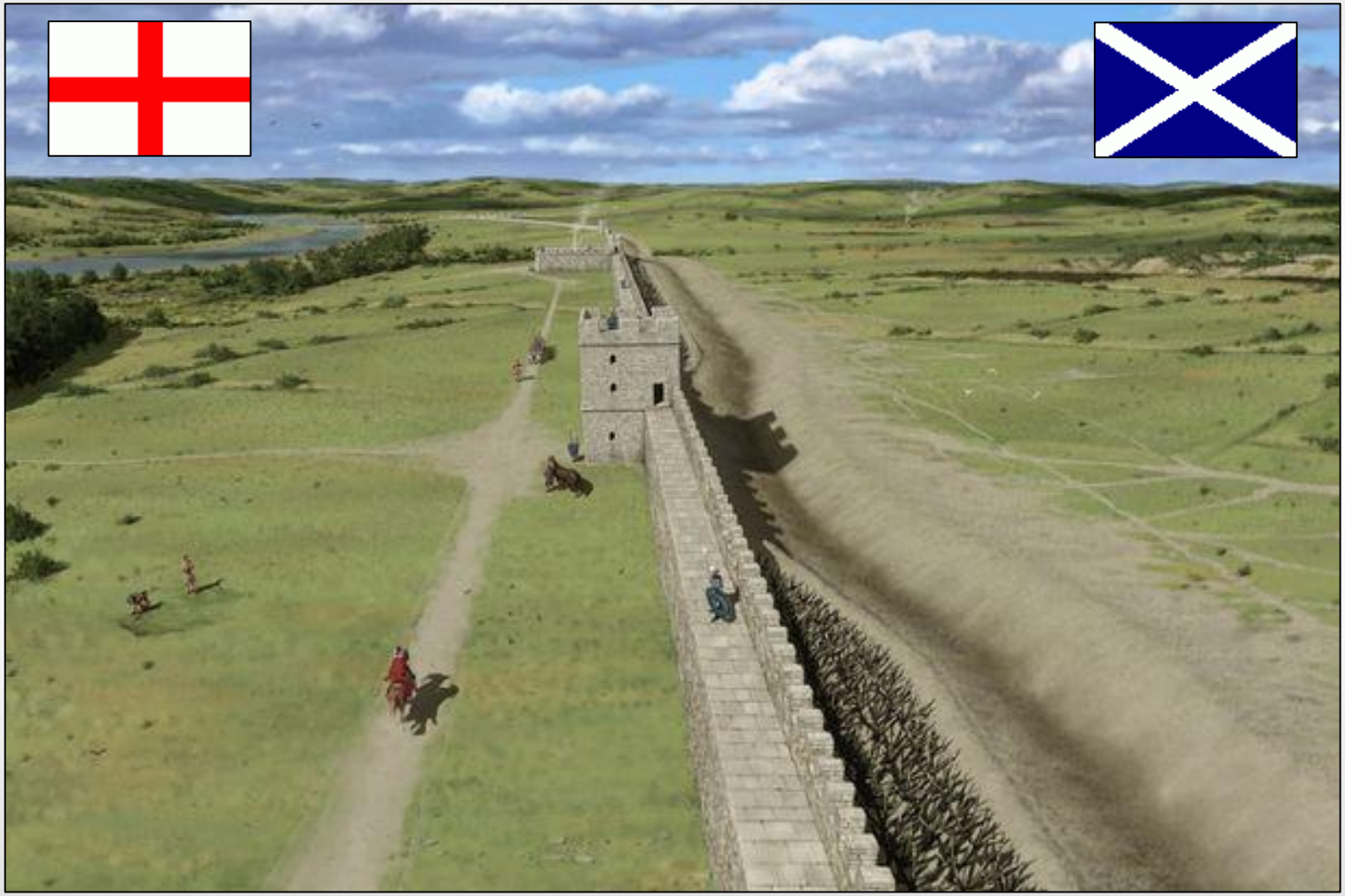
- Whither
  - Adverb; “to what place or state”
  - e.g. “*<u>Whither</u> are we bound?*”
- Wither
  - Verb; “fall into decay or decline”
  - Verb; “to become, or cause something to become, weak, dry, and smaller”
  - e.g. “*The enterprise has <u>withered</u> on the vine.”* [not reached its full potential].

Quis es tu, et quo vadis?

WHO are you…

…and WHERE are you going?

Both person *and* direction of travel are significant



Quis es tu, et quo vadis?

- WHO
  - are you…?

- Personal skills (can you be *replaced*?)
- Travelling companions (are you *supported*?)

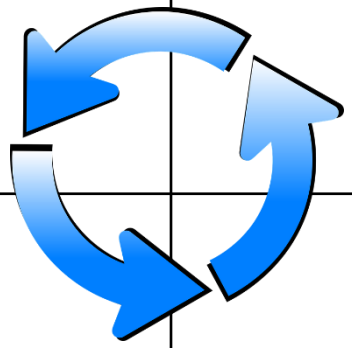
- WHERE
  - are you going?

- Building on (*past*) experience
- Adapting to (*future*) environment

W(h)ither the patent information professional? – the factors involved

PRESENT

② ME	PAST ①
③ OTHERS	FUTURE ④



The journey

- Past; Our heritage
  - how did we get here?
- Present (I); Me - Personal skillset
  - what do I need? …have?
- Present (II); Others - Management and resources
  - ‘championing’ the searcher’s function
  - providing the tools
- Future; Facing up to challenges
  - more but better? adapt or die?

Organising the IP (legal) profession

1883: Paris Convention

CIPA	Chartered Institute of Patent Agents
SICMPI	Syndicat des Ingenieurs-Conseils en Matiére de Proprieté Industrielle
APLA	American Patent Law Association
AIPA	Australasian Institute of Patent Agents
AAPIC	Asociación de Agentes de la Propiedad Industrial y Comercial
AIPPI	Association Internationale pour la Protection de la Propriété Intellectuelle
FICPI	Fédération Internationale des Conseils en Propriété Intellectuelle

1882: CIPA

1884: APLA SICMPI

1890: AIPA

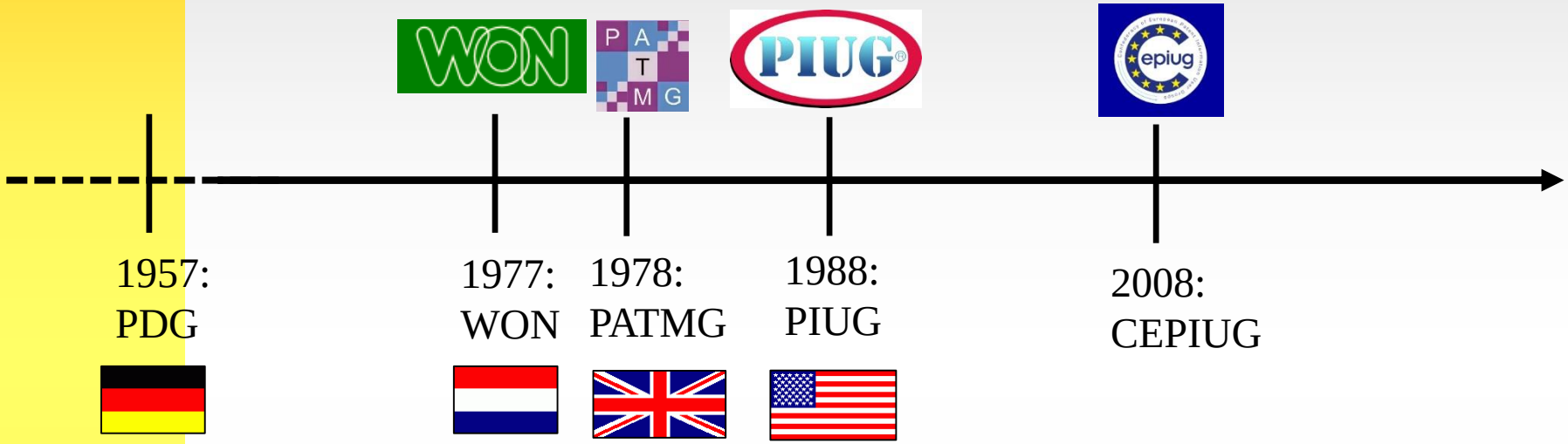
1897: AIPPI

1906: FICPI

1907: AAPIC

International Directory of Patent Agents:
1893: c.2,200 patent agents, 59 countries.
1901: > 4,000 patent agents

Organising the IP (search) profession



Dedicated databases (1950s)

Scientific search software (1970s)

In-house chemical indexing

In-house spinning (1960s)

SDC/Orbit

Derwent file online (1980s)

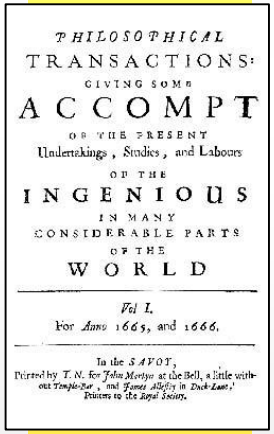
Early motivation for patent search

- US Patent Act 1836, s.7
  - "…[W]henever, on such examination, it shall appear…that any part of that which is claimed as new had before been … patented, or described in any printed publication in this or any foreign country, [the Commissioner] shall notify the applicant thereof, giving him … such information and references as may be useful in judging of the propriety of renewing his application, or of altering his specification to embrace only that part of the invention or discovery which is new…"
  - No indication of pre-grant search by Patent Office being mandated in earlier Acts.
- UK Patents Act 1902 (2 Edw.7 ch.34)
  - introduced limited novelty search from 1 Jan 1905 (GB patents, 50 years), still not grounds for rejection until 1907 Act.
    - Fry Committee (1901) showed that c.40% of granted GB patents were described in earlier British specifications.
    - led to preparation and classification of 50-years' worth of abridgements (1855-1905), based on earlier work by Bennet Woodcroft (Superintendent of Specifications and Indexes, 1852-1862).

Growth of science and scientific publications

"One of the diseases of this age is the multiplicity of books; they doth so **overcharge the world** that it is not able to digest the abundance of **idle matter** that is every day hatched and brought forth into the world." [1613]

Attributed to Barnaby Rich (c.1540-1617)
Quoted in Little Science, Big Science


PHILOSOPHICAL
TRANSACTIONS:
GIVING SOME
ACCOMPT
OF THE PRESENT
Undertakings, Studies, and Labours
OF THE
INGENIOUS
IN MANY
CONSIDERABLE PARTS
OF THE
WORLD
Vol. I.
For Anno 1665, and 1666.
In the SAVOY,
Printed by T. N. for John Martyn at the Bell, a little without Temple-Bar, and James Allestry in Duck-Lane, Printers to the Royal Society.

"Scientists have always felt themselves to be awash in a sea of scientific literature ….Even in the seventeenth century, we must not forget that the motivating purpose of the *Philosophical Transactions of the Royal Society* and the *Journal des Sçavans* was not the publishing of new scientific papers so much as the monitoring and digesting of the learned publications and letters that now were too much for one man to cope with in his daily reading and correspondence."

Little Science, Big Science
D.J. de Solla Price
First published 1963

Video clip 1 - ESRO

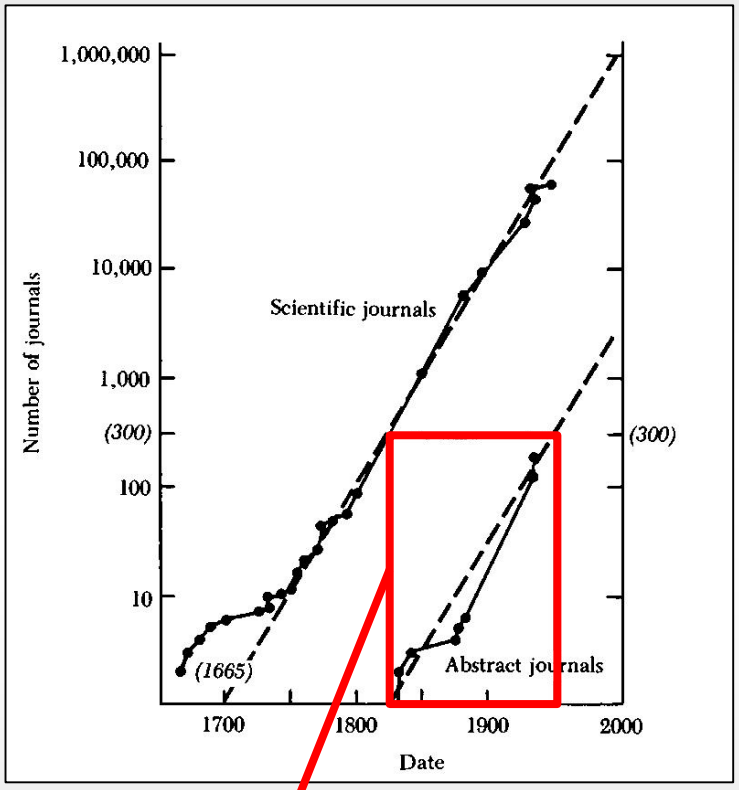
- Origins of the European Space Research Organisation (ESRO) online document retrieval system
- Later moved to the European Space Agency (ESA) data centre at Frascati, Italy, and launched as a commercial Information Retrieval System (ESA-IRS)
- www.youtube.com/watch?v=JRmlxcFh9rY
  - clip from 2′ 15″ to 3′ 40″

Video clip 2 - Dialog

- Early development of Dialog search system, from a NASA contract with Lockheed Corp. to develop a retrieval system for technical documentation.
- Spun out of Lockheed, initially as a subsidiary, then an independent commercial information provider.
- www.youtube.com/watch?v=ofaCdrlcSNQ
  - clip from 0′ 00″ to 2′ 02″

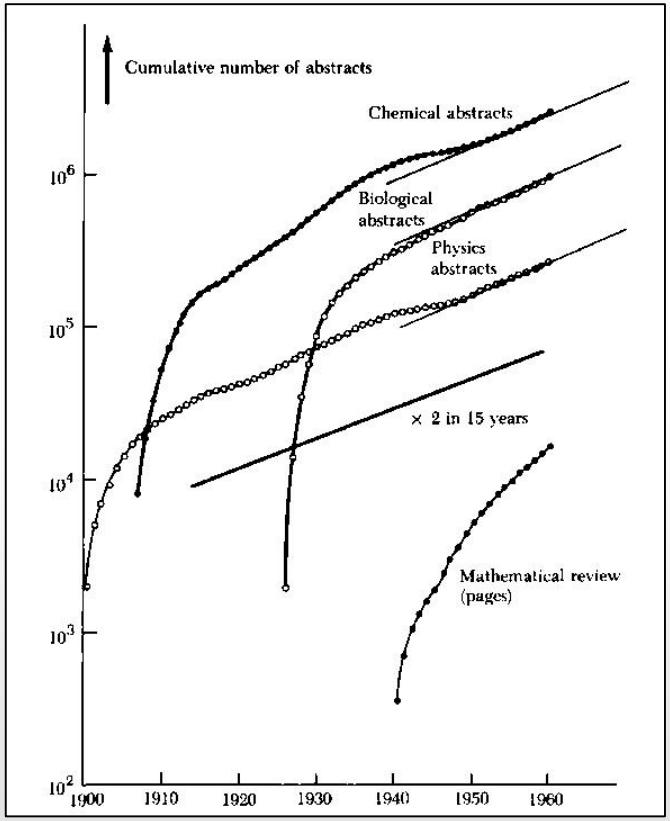
“Little Science, Big Science” (1963)

Figures from revised edition © Columbia University Press, 1986



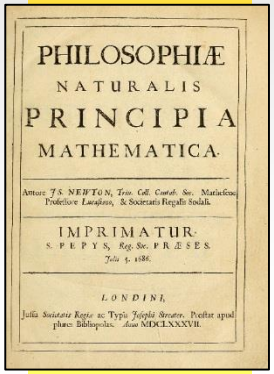
Dedicated abstracts journals start when total journals c. 300

Abstracts in physical sciences doubling every 15 years



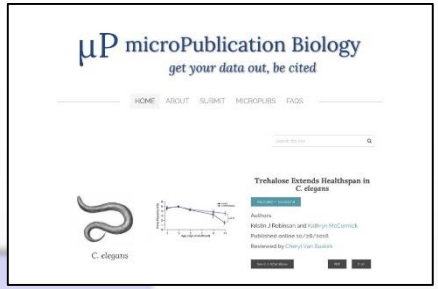
Decreasing units of 'information':

book → thesis → article → result → individual data-point?


PHILOSOPHIÆ
NATURALIS
PRINCIPIA
MATHEMATICA
IMPRIMATUR
LONDINI,

Philosophiæ Naturalis Principia Mathematica (Mathematical Principles of Natural Philosophy), 3 volumes, 5 July 1687

"The controversies over [Isaac Newton's] optical papers in the Philosophical Transactions were a source of deep distress to him, and afterward he did not relish publication until it could take the proper form of a finished book, treating the subject from beginning to end and meeting all conceivable objections and side arguments. If the journal had been at that time an effective means of communication, we might never have had the Principia."



"microPublication Biology is a new paradigm in scholarly communication… researchers can directly submit…and publish individual experimental results ….[or] negative results, reproduced results, or results that are not perceived as being sufficiently novel … [I]nformation from each microPublication is directly incorporated into community databases… thus … making the content of each microPublication computable."

MicroPublication Biology Newsletter No. 1, Spring 2018

What makes patents different?

- Discrete ‘information units’ which (supposedly) relate to a complete, useful invention
- Definite point of entry to ‘public domain’
- Multiple identities for the same information (patent families)
- Explicit legal and commercial significance (tradeable asset)

Early use of patents in-house

"Prior artefact research was administered mainly by patent attorneys in Pittsburgh. At the time George Westinghouse began his air brake business *[1869]*, patent attorneys investigated the relative position of his inventions in the mosaic of earlier air brake patents. They found that a similar invention was patented in England, around 30 years before; however, the patents had already expired because the device was not practical. This was reported to the board of directors of the company. Stimulated by the report, Westinghouse decided to extend his air brake business to England."

The rise of the patent department: A case study of Westinghouse Electric and Manufacturing Company.
S. Nishimura
LSE Economic History Department, Working Papers No. 168/12, Aug 2012

"The department now functions in nearly all fields of the patent work required. United States applications are prepared, filed, and prosecuted directly. Appeal, and interference work is being taken over to some extent. … Much service work for the other departments is handled, including citations of patent art, reports upon patentability, infringement, and scope of art. A comprehensive patent library having been acquired is kept up to date."

The House Patent Department
T. Griswold, Jr.
Ind. & Engineering Chem. March 1933

Concealment was part of the game from the beginning…

US Patents Act 1790, s.6

"…[I]n all actions [for infringement] … the defendant… may plead the general issue [of validity], and give this act… in evidence, tending to prove that the specification filed by the plaintiff does not contain the whole of the truth concerning his invention or discovery; or that it contains more than is necessary to produce the effect described; and if the concealment of part, or the addition of more than is necessary, shall appear to have been intended to mislead, or shall actually mislead the public, so as the effect described cannot be produced by the means specified, then, and in such cases, the verdict and judgment shall be for the defendant."

Early evidence of search specialists; 1950s-1970s

"Departments and factories increasingly use the research group for the determination of the state of the art in certain fields without direct connection with intellectual property rights, in order to determine which [solutions] are already being worked on by others. The separation of research from the rest of the work of patent engineers has the advantage, in addition to relieving the workload, that the research engineers are better acquainted with the research possibilities and can therefore do faster and more thorough work."

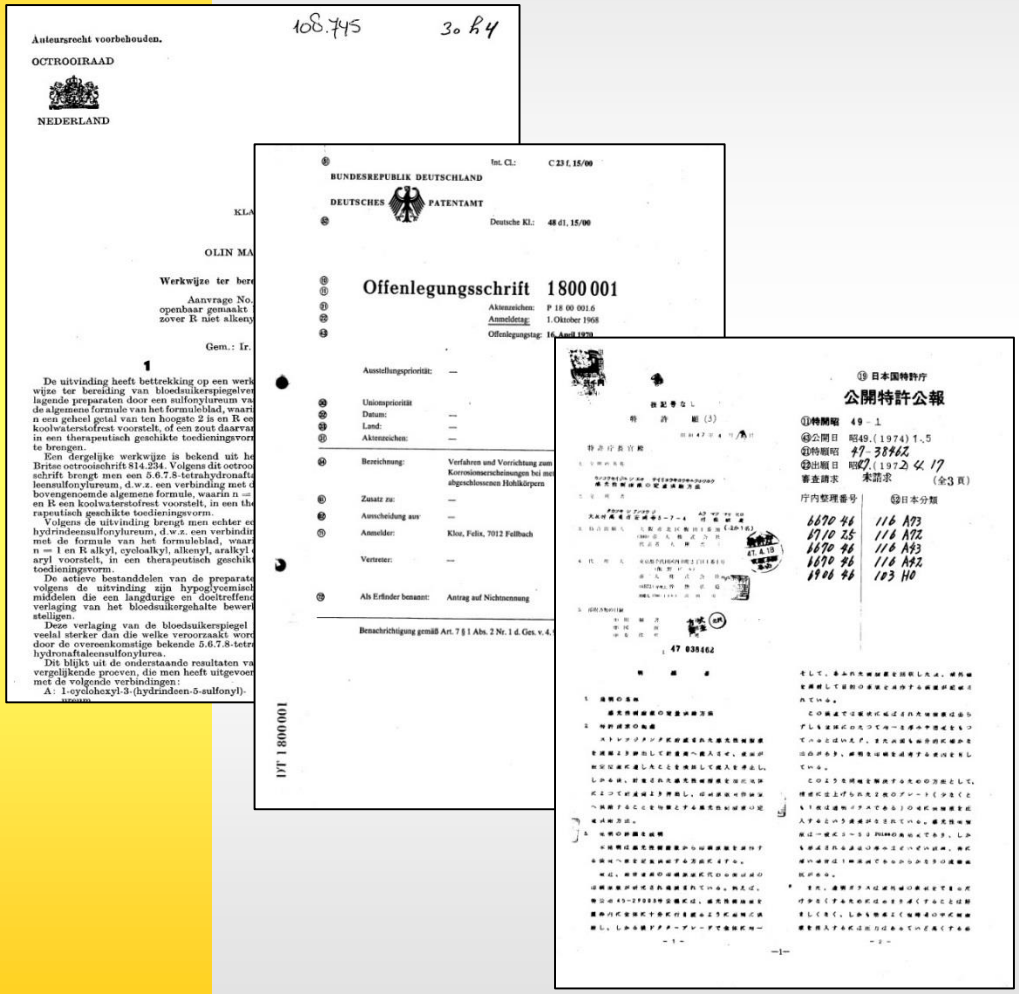
Patent Department, Progress Report 1953/54
Siemen-Schuckertwerke AG

Patent coverage in technology reference sources; pre-1930

- Beilstein Handbook of Organic Chemistry
- CH, DE, FR, GB, US

- Chemical Abstracts Service
- DE, FR, GB, US
- Selected coverage of AT, AU, BE, CA, CH, DK, HU, IT, JP, NL, NO, SE, SU.

Opening the floodgates…



In 1964, the Netherlands becomes the first country in the world to publish pending unexamined patent applications.

Patents can be useful as a source of current technical intelligence, as well as legal rights.

Germany and Japan follow in 1968 and 1970 respectively, and the new model is rapidly adopted through the 1970s.

Patents coverage in NPL databases (2001)

Imaging Abstracts (Pira)	50%
World Surface Coating Abstracts (Paint RA)	42%
World Textiles (Elsevier)	42%
Paperchem (Inst. Paper Science & Tech.)	34%
Biotechnology Abstracts (Derwent)	33%
Current Biotechnology Abstracts (RSC)	30%
Petroleum Abstracts (Univ. Tulsa)	23%
Ceramics Abstracts (Am. Ceramic Soc.)	22%
IMSWorld R&D Focus (IMSWorld)	19%
Packaging Science & Technology Abstracts (IFIS)	16%
FROSTI (Leatherhead Food RA)	16%
BioBusiness (BIOSIS)	15%
Toxlit (US NLM)	9%
RAPRA (Rapra Technology)	8%
Weldasearch (Welding Institute)	8%
Nuclear Science Abstracts (US Dept. Energy)	3%

In commercial STM searching, time = money

"The patent examiners' search of the world's patent literature, scientific and technical publications and all other likely publication media to determine whether or not the applied for invention had been previously disclosed, in whole or in part, required about sixty percent of the time he gave in 1948 to his consideration of a patent application."

"A large part of the time of the patent staff of an industrial company is devoted to search to determine: (1) Before filing for a patent if an invention has in fact been made, (2) Freedom or right to use a new facility."

The Role of the Department of Commerce in Science and Technology;
Report to the Secretary of Commerce, US by a
Special Advisory Committee of the NAS, 2 Mar 1960

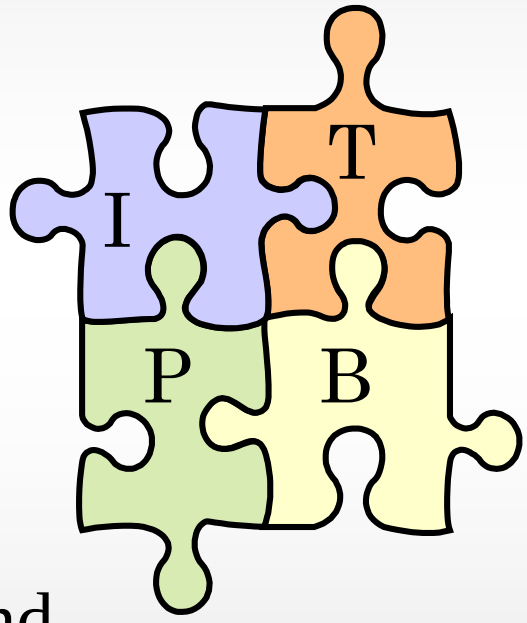
Project HAYSTAQ (NBS/USPO, 1959); HAve You STored Answers to Questions.

The journey

- Past; Our heritage
  - how did we get here?
- Present (I); Me - Personal skillset
  - what do I need? …have?
- Present (II); Others - Management and resources
  - ‘championing’ the searcher’s function
  - providing the tools
- Future; Facing up to challenges
  - more but better? adapt or die?

Present (I) –
skills for patent information professionals

Information science

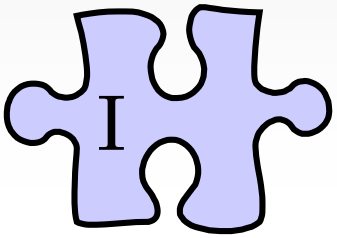


Technical field

Patent laws and procedures

Business awareness

Information science



Clearly, a good searcher needs to be aware of :

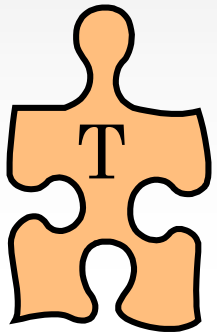
- best practice in information **source selection**
- developments in information **retrieval techniques**
- application of specialist IT tools to client needs

Note – information science is *not* the same as information technology (IT); being a master in Excel macros does not make you a better searcher!

Technical field

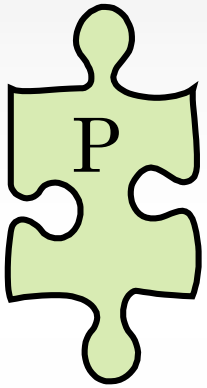
Knowledge of the appropriate technical domain(s) in which you are conducting searches is vital, in order to:

- gain credibility with customers
- understand queries and conduct searches
- assess answers and report intelligently



Note – reading a few patents in the field is probably not enough to keep you up to date with what is *really* happening.

Patent laws and procedures

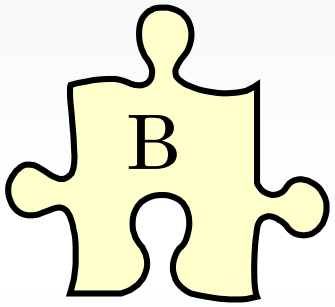


- Both the legal and bibliographic aspects of patent publication can change frequently.
- Attorneys and agents frequently only know the legal aspects surrounding **prosecution** or **litigation** in detail – they may not know the **publication** aspects (i.e. what can be found, when..).
- Maintaining your awareness of changes in prosecution procedure and national law is not a luxury – these factors impact directly upon our understanding of information tools.

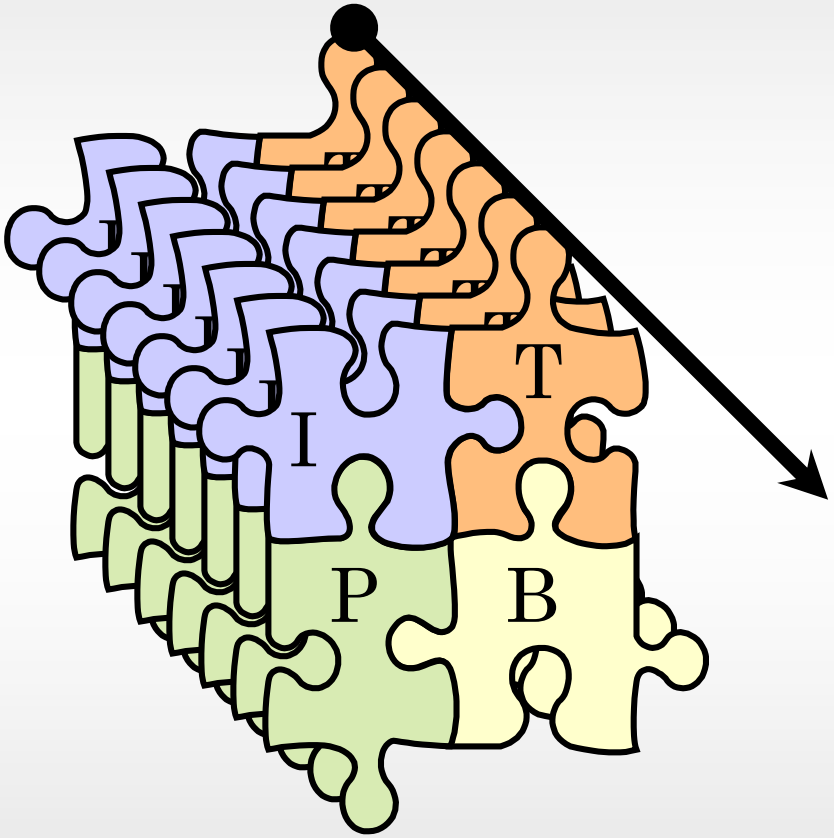
Note – it can be difficult to isolate those aspects of law which *we* need, from the general legal commentary (cf. recent discussions on unitary patent)

Business awareness

- **Language** skills: reading documents, transliterating inventor names…
- **Politics**: national boundaries, country codes, inter-relationships, signatory status of treaties…
- **History** and geography: regional patent systems, re-registration of rights, co-operative trade blocs, FTA areas…
- General **law**: other aspects of IP, relationship to wider national scene, customs and import law…
- **Industry** developments: who owns whom?
- **Business** awareness: R&D trails/revisiting old technology?
- etc., etc…..



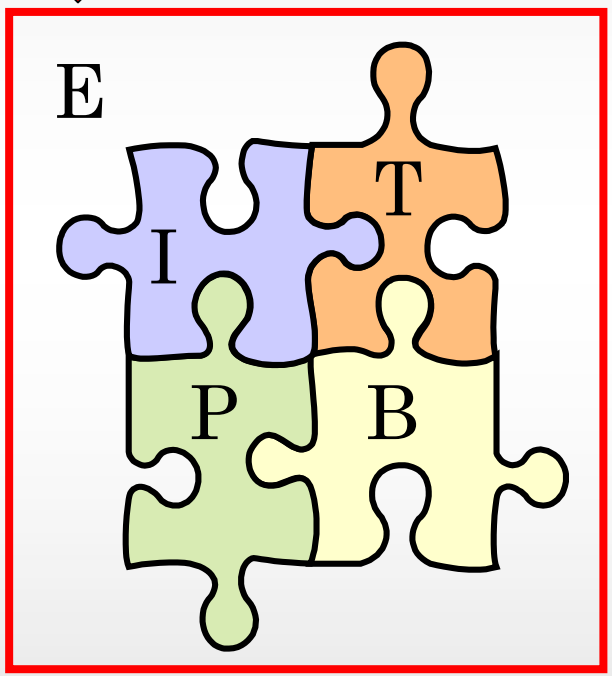
Adding a new dimension – time!



But merely adding x years of work (with y different employers) does not necessarily make you a better searcher, either…

An alternative view….

E = *experience;* surrounding and expanding upon all other skills.

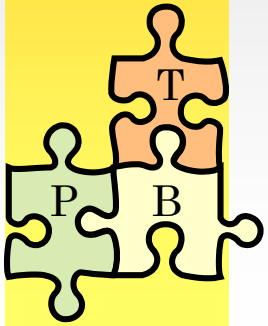


"Experience is what you get, when you didn't get what you wanted".

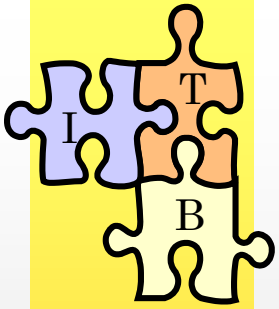
attrib. Randy Pausch/Dan Stanford

The factor which separates an *experienced* searcher from a *good* one is their ability to learn when their existing skills **break down**.

Missing skills – but gaining experience.

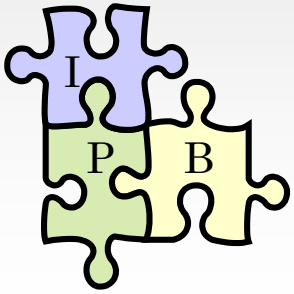


Information skills:
FTO search:
Misunderstanding of detailed database content and structure = information loss during cross-file/merger.

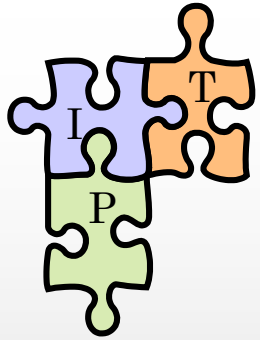


Patent skills:
State of the art / valuation:
Missing citations from front-page DE documents = incomplete data to visualise.

Technical skills:
Validity search: Incomplete knowledge of industry terminology = information loss from NPL literature.



Business skills:
Portfolio search:
Inadequate briefing on JP company name and structure = information loss from Western databases.



When things go wrong…

- The professional searcher…
  - *analyses* the problem themselves; not relying on second-hand interpretations
    - (experience does not spread by osmosis)
  - *talks* to colleagues (internal and external) to get extra insight
    - (‘more training’ cannot anticipate every situation you encounter)
  - *persists*
    - (the ‘one-shot’ searcher will never improve)

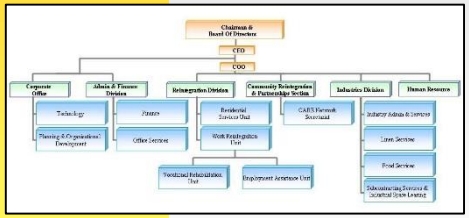
The journey

- Past; Our heritage
  - how did we get here?
- Present (I); Me - Personal skillset
  - what do I need? …have?
- Present (II); Others - Management and resources
  - ‘championing’ the searcher’s function
  - providing the tools
- Future; Facing up to challenges
  - more but better? adapt or die?

Present (II) – Management

- Management structures to support the patent information professional
  - Technical?
  - Legal?
  - Information science / technology?
- Continuing improvement
  - a ‘learning’ environment

The management wheel?



Technical Information, IT and Statistics (TISS)

Chemistry Department

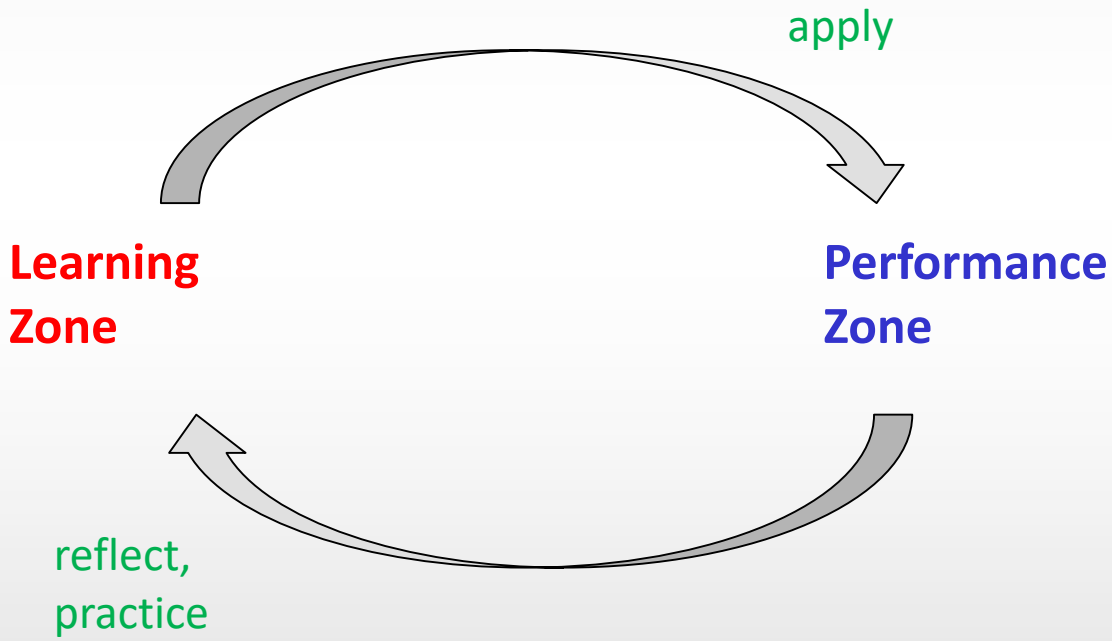
Research Station Manager's Department

Common Site Services Department

Library & Archives

Management structures and searcher efficiency

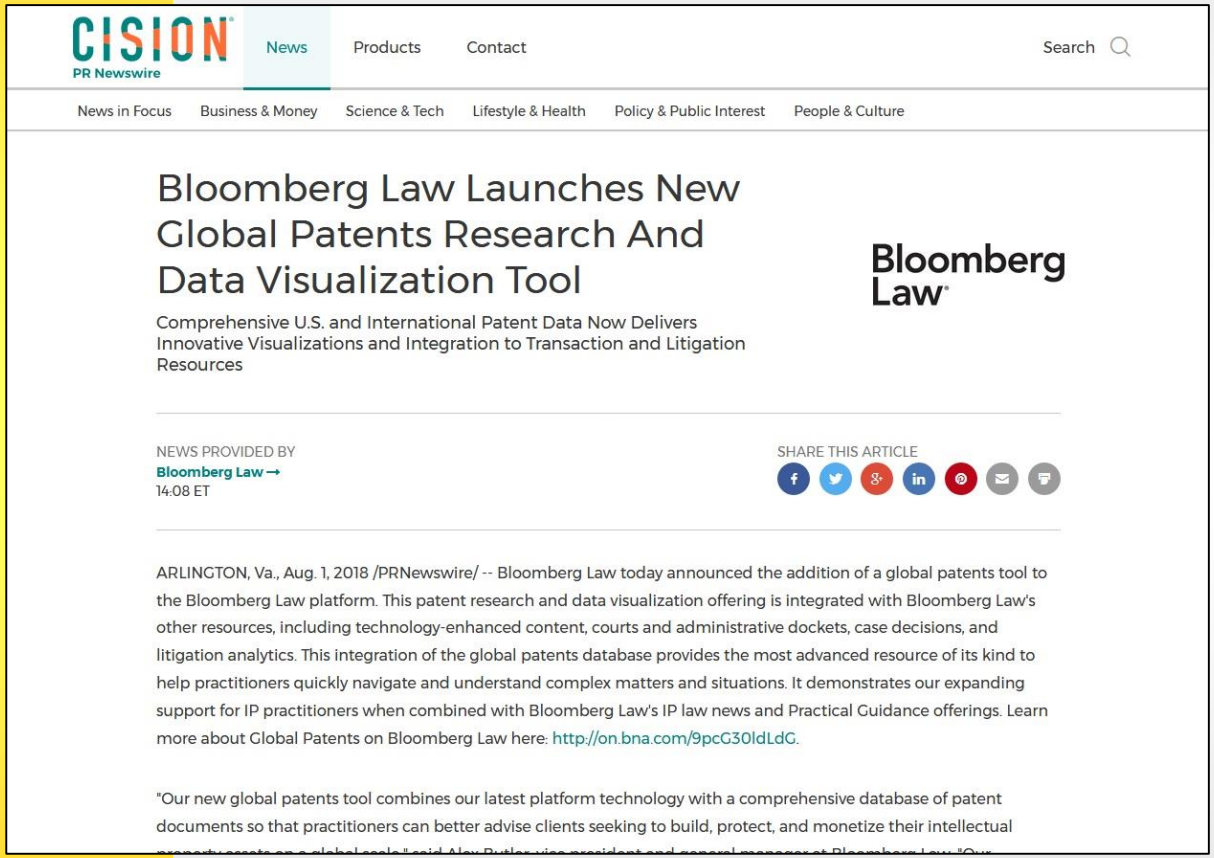
- Eduardo Briceño (YouTube, TED Talks)
  - performance zone or learning zone?



Video clip 3 – Getting better at what we do

- Eduardo Briceño is a partner in Mindset Works, Inc., which works with companies to improve the performance and lifestyle of corporate employees.
- His major point in this clip is the need to step back from our main ‘performance’ job and get better by deliberately taking time in a ‘learning zone’, to experiment with old skills and learn new skills in a supportive work environment.
- www.youtube.com/watch?v=YKACzIrog24
  - clip from 08′ 43″ to 11′ 22″ (end of video)

Present (II) – Resources – new players are appearing…



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Bloomberg Law Launches New Global Patents Research And Data Visualization Tool

Bloomberg Law

Comprehensive U.S. and International Patent Data Now Delivers Innovative Visualizations and Integration to Transaction and Litigation Resources

NEWS PROVIDED BY
Bloomberg Law →
14:08 ET

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ARLINGTON, Va., Aug. 1, 2018 /PRNewswire/ -- Bloomberg Law today announced the addition of a global patents tool to the Bloomberg Law platform. This patent research and data visualization offering is integrated with Bloomberg Law's other resources, including technology-enhanced content, courts and administrative dockets, case decisions, and litigation analytics. This integration of the global patents database provides the most advanced resource of its kind to help practitioners quickly navigate and understand complex matters and situations. It demonstrates our expanding support for IP practitioners when combined with Bloomberg Law's IP law news and Practical Guidance offerings. Learn more about Global Patents on Bloomberg Law here: http://on.bna.com/9pcG30ldLdG.

"Our new global patents tool combines our latest platform technology with a comprehensive database of patent documents so that practitioners can better advise clients seeking to build, protect, and monetize their intellectual

PR Newswire,
2 August 2018

..but will they deliver anything really new?

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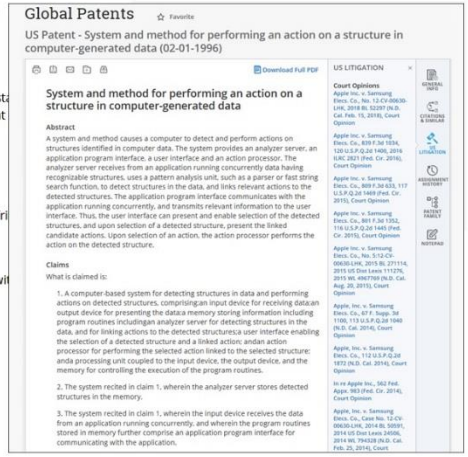
Global Patents gives practitioners the critical information they need to understa broader patent context across jurisdictions and to better advise and represent seeking to build, protect, and monetize their intellectual property.

Comprehensive data sets include:

- Patent Families, Citations, and Similar Patents
- U.S. Litigation in the Federal Courts and the ITC, nd Before the Patent Tri Board
- Figures and Drawings, and Assignment History

Global Patents features an enhanced viewer for drawings and figures, along wit Excel download functionality.



Comprehensive data sets include:

- Patent Families, Citations, and Similar Patents
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- Figures and Drawings, and Assignment History

Consequences of resource allocation

- Information providers may be tempted to implement ‘new technology’ simply to preserve market share.
- Investment may increase in ‘user-friendly’ tools at the expense of what the professional needs
  - search requirements of average scientist or lawyer take precedence.
- Information products (databases) may be structured to reflect the ‘average’ user’s search requirement only
  - specialist indexing not upgraded.
- Archiving of development phases of information products may be neglected
  - “*Today’s users don’t need to know that…”*

Under-investment is nothing new…

Re. card-based Hill (chemical formula) index at USPO

> At present, owing to neglect, this index is little used and threatens to go rapidly from bad to worse. Two clerks who are not chemists and who have no chemical supervision have been left at work on it, and that for part time only. For several years no new drawer sections have been provided for housing the accumulated cards, so that there are over 100,000 finished cards in storage that cannot be put into the main index. This, in contrast with a former regular force of one chemist and four assistants provided with sufficient supplies.

Letter to J.Ind.Engineering Chem.
from Austin M. Patterson, April 1919
(editor of CAS 1909-1914)

The journey

- Past; Our heritage
  - how did we get here?
- Present (I); Me - Personal skillset
  - what do I need? …have?
- Present (II); Others - Management and resources
  - ‘championing’ the searcher’s function
  - providing the tools
- Future; Facing up to challenges
  - more but better? adapt or die?

Future – Challenges

BBC Sign in News Sport Weather iPlayer TV Radio More Search

NEWS

Home UK World Business Politics Tech Science Health Family & Education Entertainment & Arts Stories More

Business Your Money Market Data Companies Economy

Adapt or die: How to cope when the bots take your job

By Matthew Wall
Technology of Business editor

16 March 2018 Share

Will smart virtual assistants take our jobs or make them more fulfilling?

Reports that robots, automation and artificial intelligence are going to put millions of us out of work may sound troubling, but should we believe them? That largely depends on whether we're technology optimists or pessimists. In

Top Stories

PM seeks new jobs partnership with Africa
Theresa May pledges £4bn in extra investment but backs a "fundamental shift" in future aid spending.
6 minutes ago

May shows off her dance moves
3 hours ago

Police's direct plea to double stab suspect
1 hour ago

Features

Bridesmaid spends 15 hours escaping wedding

McKinsey & Co., Dec. 2017

"*…60 percent of occupations have at least 30 percent of constituent work activities that could be automated.*"

"…by 2030, 75 million to 375 million workers (3 to 14 percent of the global workforce) will need to switch occupational categories."

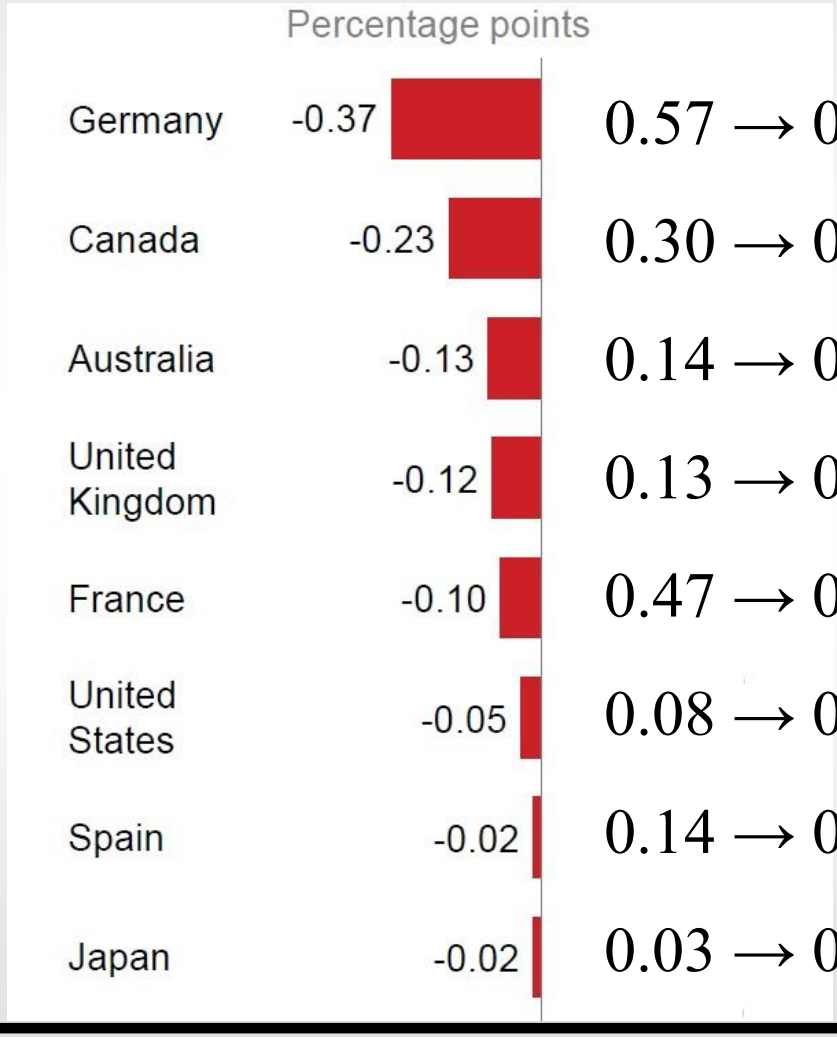
General employment prospects

Source: https://www.workandmoney.com/s/dying-professions-83f89af396e34d92 [2018.09.03]

Travel agents
Mortgage brokers
~~Bookkeepers~~
Lawyers
~~Broadcasters~~
Middle managers
~~Casino cashiers~~
IT guys
~~Financial planners~~
Floral designers
Postal workers
~~Photo processors~~
Data entry clerks
~~Telephone switchboard operators~~
Farmers and ranchers
Fast food cooks
Newspaper reporters
Jewellers
Textile machine workers
Furniture finishers
Door-to-door salespeople
~~Print binding~~ and finishing workers
Detectives
Architects
Primary care physicians

No mention of librarians?

Total public spending on worker training (% GDP, Δ 2015-1993)



Adapted from © McKinsey, 2017

Where do we see ourselves?

? ?

New technology, unemployment & IP

William Lee (1563-1614) was refused a patent in 1589 for his frame knitting machine by Elizabeth I.

Arms of the Worshipful Company of Framework Knitters.

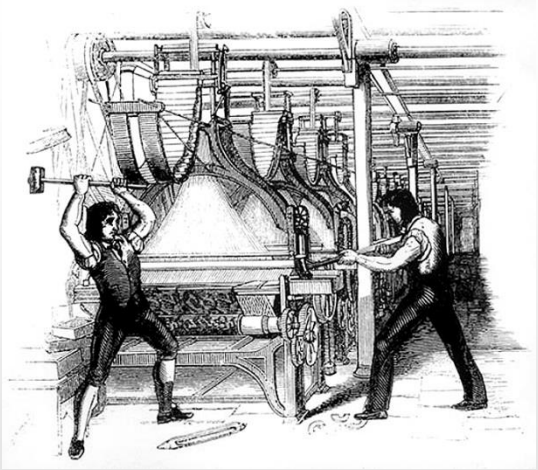
"Thou aimest high, Master Lee. Consider thou what the invention could do to my poor subjects. It would assuredly bring to them ruin by depriving them of employment, thus making them beggars."

Reactions to ‘new technology’

sabot

+

+



Public Domain,
https://commons.wikimedia.org/w/index.php?curid=4150391

= *sabot*age

Predicted growth of 'educator' group (teacher, librarian) 2016-2030

	% job market 2016	% job market 2030	Net change (millions)
China	2	4	+ 19.0
Germany	3	3	+ 0.2
India	1	2	+ 8.0
Japan	3	3	- 0.1
Mexico	1	1	+ 0.2
USA	6	7	+ 0.8

Source: McKinsey report, 2017

"Supporting innovation and technological diffusion is critical, including the adoption of automation technologies themselves… To do so will require an effective and balanced system for *encouraging the development and deployment of intellectual property*, a high-skill scientific and engineering workforce, and public or private funding for basic research and its commercialization."

Impact on information specialists

"*While machines can be trained to perform a range of cognitive tasks, they remain limited. They are not yet good at putting knowledge into context, let alone improvising, and they have little of the common sense that is the essence of human experience and emotion. They struggle to operate without a pre-defined methodology*." (McKinsey, 2017)

Superior technology does not always ensure market adoption!

Will “intelligent” search engines take on patent search?

- Search engine developers assume that
  - user preferences indicated during one search hold good for all subsequent searches
    - cf. cookies for tailoring adverts to prior use
  - new searches replace, not supplement, older ones
    - cf. repeat ‘top-up’ searches during patentability
  - there is limited value in archiving past search strategies
    - cf. litigation and roll-back records

Patent search requirements are different…

- ‘Agnostic’ search technology
  - search results *must not* be skewed by what has been marked as relevant or interesting in prior searches; each attempt is *ab initio.*
- Supplementary searches
  - the same search strategy must receive (at least) the same results when re-run at intervals separated in time.
- Roll-back/archiving
  - it must be possible to show what would have been retrieved (and what would have been missed) if the search had been conducted on a specific date, and why?
- If these criteria are removed, AI-based technology could have a greater impact; but will they be?

Social media and the filter bubble.

A filter bubble is a state of *intellectual isolation* that can result from personalized searches when a website algorithm selectively guesses what information a user would like to see based on information about the user, such as location, past click-behavior and search history. As a result, users become *separated from information that disagrees with their viewpoints*, effectively isolating them in their own cultural or ideological bubbles.

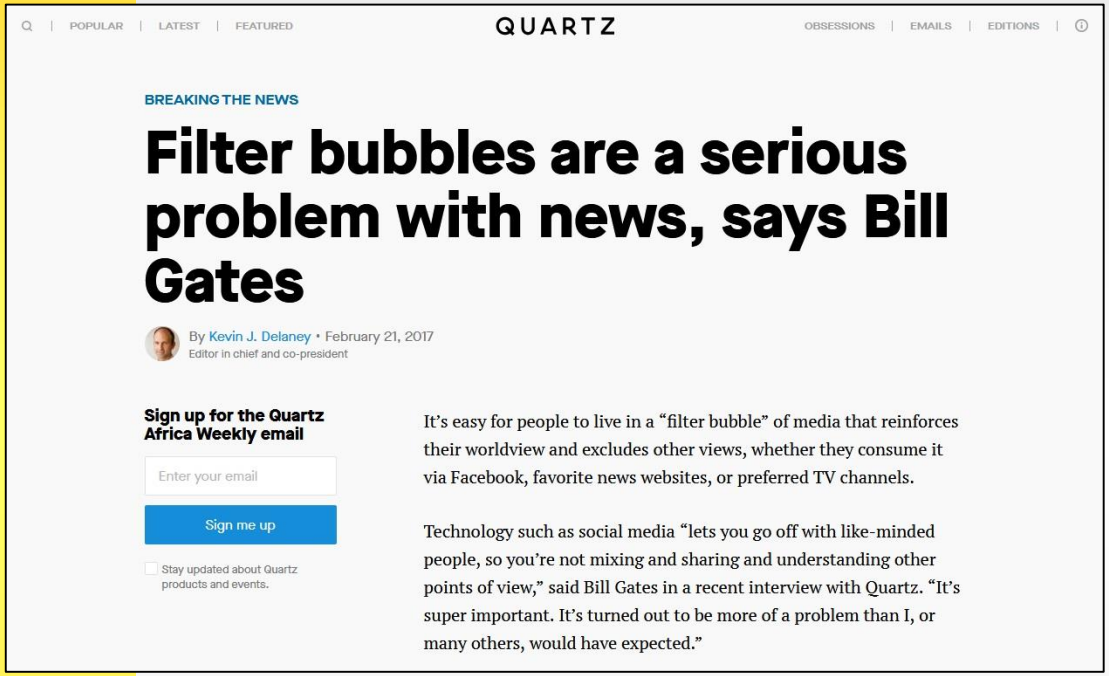
Wikipedia, "Filter Bubble" [Accessed 2018.09.05]

But surely that's not a problem in science and technology search?

"Searching online [on the internet] is more efficient and following hyperlinks quickly puts researchers in touch with prevailing opinion, but this may accelerate consensus and narrow the range of findings and ideas built upon."

Evans, James A.
"Electronic Publication and the Narrowing of Science and Scholarship."
Science 321(5887) (18 Jul 2008) : 395-399

Information literacy re-emerges…



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BREAKING THE NEWS

Filter bubbles are a serious problem with news, says Bill Gates

By Kevin J. Delaney • February 21, 2017
Editor in chief and co-president

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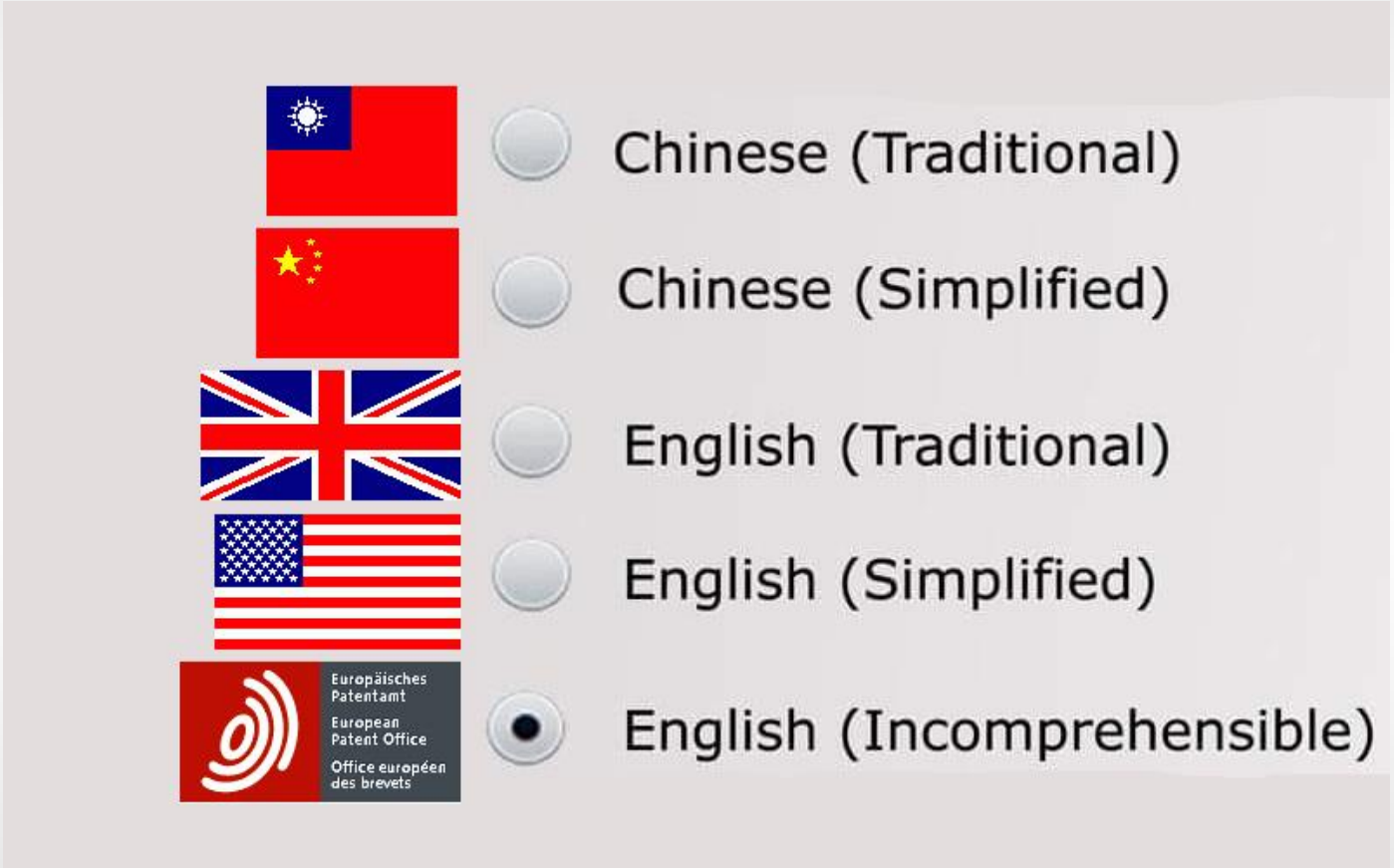
It's easy for people to live in a "filter bubble" of media that reinforces their worldview and excludes other views, whether they consume it via Facebook, favorite news websites, or preferred TV channels.

Technology such as social media "lets you go off with like-minded people, so you're not mixing and sharing and understanding other points of view," said Bill Gates in a recent interview with Quartz. "It's super important. It's turned out to be more of a problem than I, or many others, would have expected."

'But the Microsoft co-founder also believes that the filter-bubble problem will self-correct over time... Education is a counterbalance to filter bubbles, says Gates, since it exposes people "to a common base of knowledge." '

… and we have the ongoing language challenge.



Summary

- Past:
  - The challenge of information overload is not (solely) a result of electronic data output; the motivation for intermediaries is still valid.
- Present (I):
  - Patent information professionals need a complex skill-set, constantly updated.
- Present (II):
  - Management structures for the information professional have not always provided the best environment for development
  - Suppliers need to be aware of the specialist market needs, not just ‘me-too’ technical changes.
- Future:
  - Specialist professionals may not be as endangered by AI as originally thought; but information professionals will need to have a voice in what their role is.

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