

London's new economy in numbers



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1. Introduction

The following pages summarise Standard Industrial Classification (SIC) employment data for London from tables presented by GLA Economics, *More Detailed Job Series, July 2018 Update*. The data sources used by GLA Economics included a combination of new Business Register and Employment Survey (BRES) outputs for 2015 and 2016; and Work Force Jobs (WFJ) Section-level Employee Jobs Series (from June 2017).

A similar exercise could be undertaken for any major city or sub-regional economy as a way of forming a sound understanding of the types of activities that are growing or shrinking – a key determinant of the types and location of employment space required.

The dataset provides a time series of employee jobs for detailed industry classes from 1998; while the Update contains data up to 2016. This paper compares 1998 data with 2016 data.

The SIC 2007 data series is broken down into Sections, Divisions, Groups and Classes. Analysis normally takes place (for example, in spatial planning and economic regeneration) at the aggregated Sections level, as shown in the table below.

This shows London's jobs market growing from 3.8m in 1998 to almost 5.0m in 2016. It can also be seen, for example, that while jobs in manufacturing halved over this period (from 233,000 to 105,500), professional and scientific services grew by 84% (from 369,250 to 678,500 jobs).

Section	Class	Description	1998	2016
A	0100-0322	Agriculture, forestry and fishing	5,500	1,500
B	0510-0990	Mining and quarrying	4,500	2,250
C	1011-3320	Manufacturing	233,000	105,250
D	3511-3530	Electricity, gas, steam and air conditioning supply	6,750	9,750
E	3600-3900	Water supply; sewerage, waste management	16,250	14,000
F	4110-4399	Construction	159,000	155,750
G1	4511-4690	Wholesale and motor repair	223,000	192,000
G2	4711-4799	Retail	353,000	433,000
H	4910-5320	Transportation and storage	237,750	220,250
I	5510-5630	Accommodation and food service activities	241,500	372,500
J	5811-6399	Information and communication	252,000	406,750
K	6411-6630	Financial and insurance activities	327,250	346,750
L	6810-6832	Real estate activities	58,250	128,250
M	6910-7500	Professional, scientific and technical activities	369,250	678,500
N	7710-8299	Administrative and support service activities	400,500	540,750
O	5411-8430	Public administration and defence; social security	216,750	212,000
P	8510-8560	Education	231,000	363,000
Q	8610-8899	Human health and social work activities	314,000	517,000
R	9001-9329	Arts, entertainment and recreation	88,250	143,500
S	9411-9609	Other service activities	95,250	109,250
T	9700-9820	Activities of households as employers	...	14,750
Total			3,832,500	4,967,500

These 21 Sections are then broken down into Divisions (two-digit), Groups (three-digit) and Classes (four-digit). There are 93 lines at Division level; 272 lines at Group level

and 615 lines at Class level. This paper focuses on the finest grain data, the four-digit Classes, and Appendix One contains a full listing of the 615 activity lines at this level. The paper also focuses mainly, but not exclusively on Sectors C to N, as lower order sectors do not feature in the London economy, and higher order sectors are dominated by public sector activity (culture, education, government and health).

This summary paper does not describe every line of the Classes data. The purpose of the paper is to draw attention to broad changes in London's economy, and so the charts focus on the fastest growing and fastest shrinking lines within each Class.

The rates of change within and between Classes varies widely. As a result, the scale on the x-axis in the charts is not uniform. This should be borne in mind when seeking to compare different charts.

More detailed analysis and descriptions of the SIC Classes can be found in *UK Standard Industrial Classification of Economic Activities 2007 (SIC 2007) Structure and Explanatory Note* (ONS, 2009).

2. London is making fewer things

The first six Sections of the SIC (A-F) are dominated by C (manufacturing). Sections A (agriculture, fishing and forestry) and B (mining and quarrying) have negligible jobs in London; while D (electricity and gas), E (water and gas supply) and F (construction) have 7,700, 11,800 and 155,600 jobs, respectively.

Currently the largest proportion of jobs in the construction sector are on development sites; the emerging and potential future impact of modular and prefabricated building on jobs and land/space requirements within and outside London is beyond the scope of this paper. Of the six Sections, only C (Manufacturing) reveals very much about London's evolving economy.

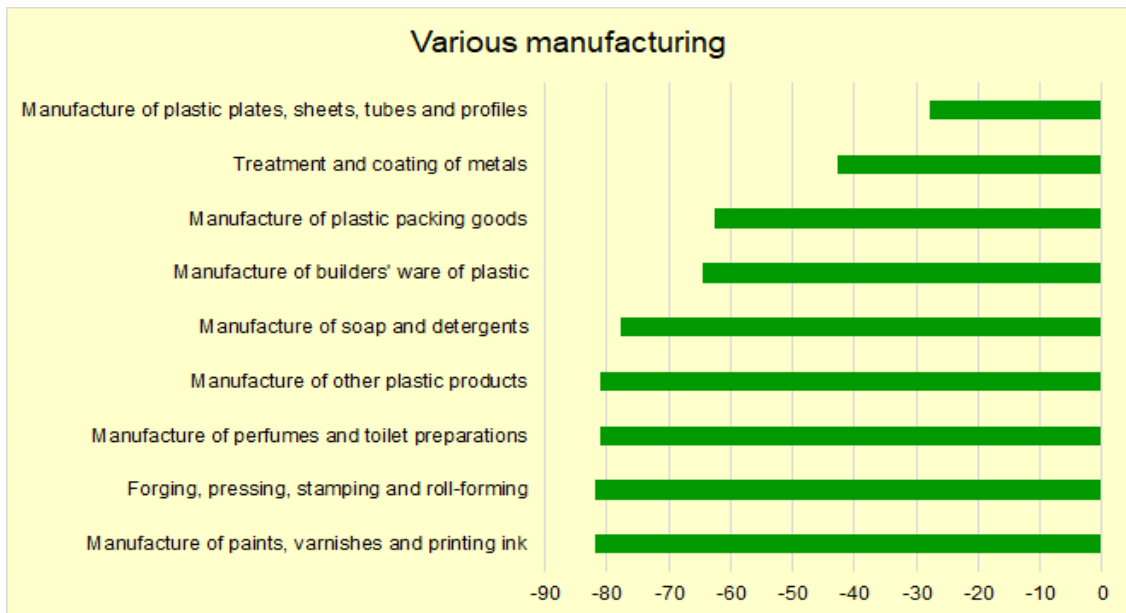
Even within Section C, there are numerous classes of activity that simply do not feature in the London economy; and there are many where there has been little change over the period 1998 to 2016. The following two charts look at the manufacture of base products and the manufacture of higher value products.

Various manufacturing (Codes: 2030, 2041, 2042, 2221, 2222, 2223, 2229, 2550 and 2561)

As can be seen, the manufacturing of many base products, activities that might be described as 'dirty' in terms of their premises and plant, have been in sharp decline. Paints, perfumes, soaps, packing goods and plastics are all included here.

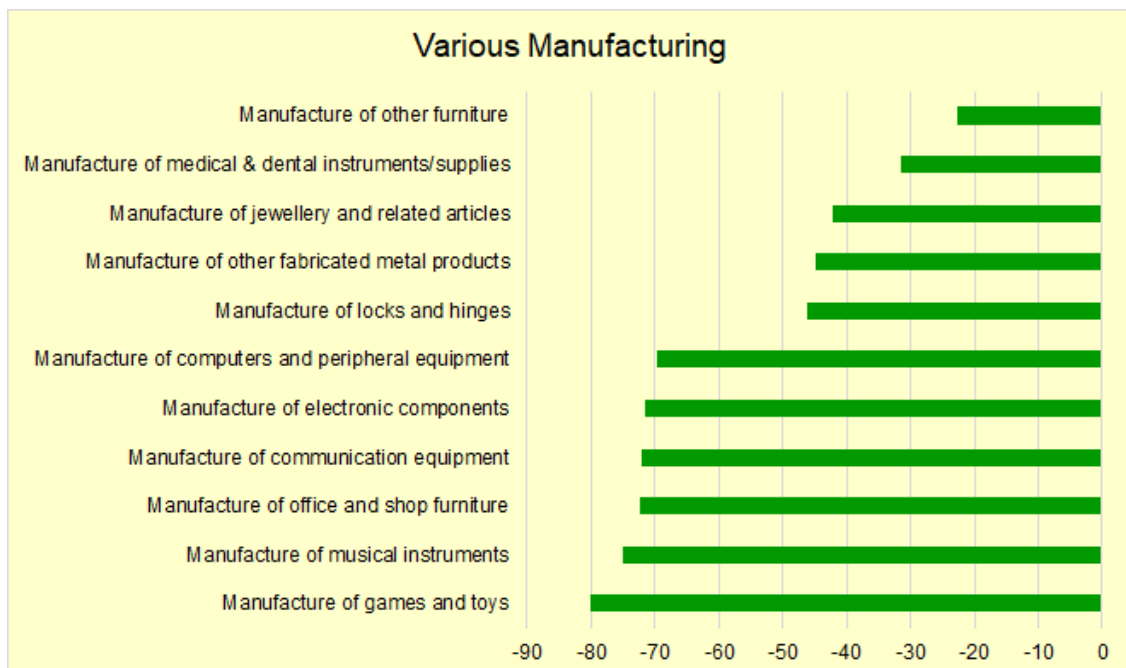
But it seems that London is losing jobs not only in these base industries, but also in those that might be described as higher value goods.

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Various manufacturing (Codes: 2572, 2599, 2611, 2620, 2630, 3101, 3109, 3212, 3220, 3240 and 3250)

All Codes shown here have shrunk by between 23% and 80%. There has been a sharp decline in the manufacture of computers and electronic components, which probably reflects off-shoring of activities to lower cost locations, often in Asia. The same is also possibly true for making office and shop furniture and musical instruments. The sharp fall in the manufacture of games and toys probably reflects the substitution of 'actual' games with online games (cf rapid growth of jobs in 'other software publishing' and 'publishing of computer games' under publishing, below).



The only growth in jobs across the whole (non-food) manufacturing sector was in the cutting, shaping and finishing of stone (Code 2370); the manufacture of metal structures (Code 2511); the manufacture of metal doors and windows (Code 2512); repair of electrical equipment (Code 3314) and installation of industrial machinery and equipment (Code 3320). The first three of these are related to the construction and architecture trades where jobs growth has been strong.

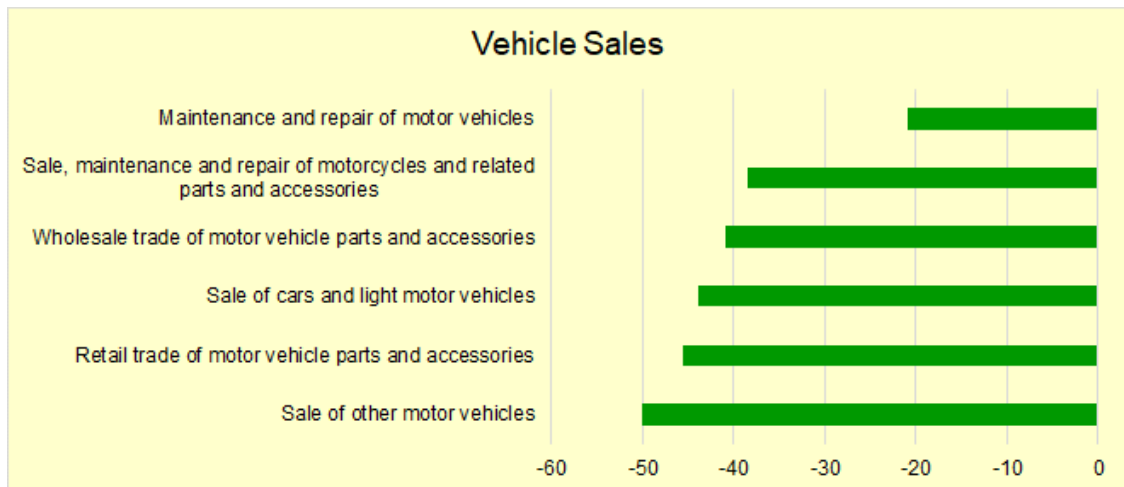
As if it needed re-stating, the data suggest a continuing decline in demand for traditional, factory-style buildings. Undoubtedly some jobs are disappearing altogether, while others are 'moving' to lower cost locations in the UK and beyond (furniture and toy manufacture).

3. And there are fewer jobs selling vehicles

Section seven (G) of the SIC defines wholesale (G1) and retail (G2) activities. The sale of motor vehicles is contained within G1, which is shown below, before wholesaling activities.

Vehicle sales (Codes: 4511, 4519, 4520, 4531, 4532 and 4540)

All Codes shrink, by between 21% and 50%. The figures probably relate to the retreat of garages and showrooms from high value land and buildings to lower cost locations and leaner stock control and supply chain management.



It might be postulated that the decline in sales jobs is, at least in part, due to a rise in leasing activity, or the direct purchase of cars through the internet. However (not shown here), there has been a 27% fall in the number of jobs involved in leasing cars and light motor vehicles (Code 7711). Either way, there are implications for changing space requirements, for example, from showrooms close to residential areas to short-term storage of vehicles in peripheral but secure locations.

4. There are fewer jobs in warehouses

Various wholesale (Codes: 4622, 4631, 4634, 4636, 4638, 4639, 4641, 4643, 4645, 4646, 4647, 4649, 4651, 4652, 4662, 4663, 4665, 4666, 4672, 4675, 4676, 4677 and 4690)

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Wholesale activities have witnessed varying fortunes in terms of jobs growth, with an overall decline of 12,600 jobs (8.1%). The following two charts show the fastest growing and the fastest shrinking.

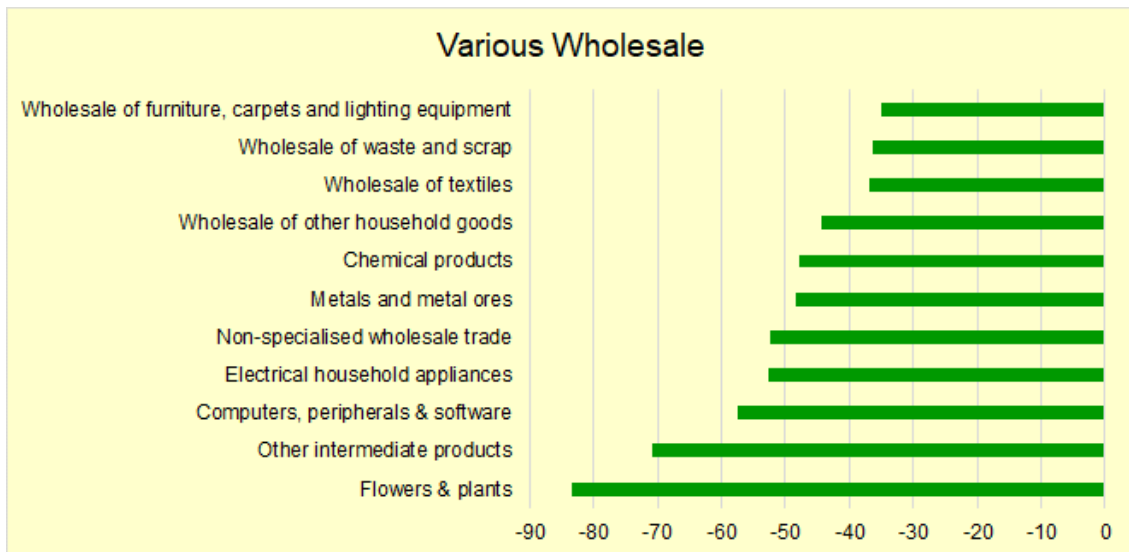
All those shown in the first chart grew by more than 39%. For example, office furniture, office equipment and electronic and telecoms equipment – all part of London's burgeoning office economy – grew well. So too did perfume and cosmetics (related to the rapid growth in leisure and health care (below), and beverages (related to coffee shops).

The growth of jobs in wholesaling of machine tools and confectionery is more difficult to explain. The latter could be related to the increasing numbers of specialist (often craft) producers notably in the manufacture of food and beverage sold on line or through retail/service/market outlets. This may also point to a deficit/lack of clarity in the SIC codes to reflect the increased blurring of distinctions between wholesale and internet retailing.

The growth of employment in wholesale office furniture is interesting given the sharp decline of jobs in furniture manufacturing (above). London needs more space for storing, but less for making – perhaps reflecting the rise of imports in this important sector.



The second chart shows the fastest shrinking wholesale activities – all in excess of 35%. Jobs in the wholesale of flowers and plants fell by 80%, and intermediate products (plastic, rubber, textiles, paper and precious stones) fell by 71%. Wholesaling in computer peripherals and software and electrical household appliances also fell sharply – probably reflecting the rise of online trading.



Overall the data show a 'sector' with enormous internal dynamics. Most of the growth has occurred in activities selling relatively high value goods and foodstuffs of various kinds; while most of the shrinkage has been in relatively low value, more bulky products. This suggests that premises requirements might be changing in terms of the size and specification of buildings, and locational needs.

The greatest percentage change in wholesale flowers and plants possibly relates to the decline in wholesale operations at Covent Garden Flower market at Nine Elms prior to redevelopment in the area. It may also be related to the increase in direct sales to retail outlets by growers (esp. Dutch) from refrigerated container lorries. These changing wholesaling/retailing patterns and the rise of internet shopping has implications for need for secure lorry parks within/near London and space for breakdown warehouses, facilities related to last mile delivery and local drop/off storage facilities in or near residential areas .

5. And more in specialist shops, markets and on-line

Various retail (Codes: 4725, 4726, 4729, 4730, 4741, 4743, 4751, 4761, 4762, 4763, 4764, 4765, 4774, 4775, 4777, 4781, 4789 and 4791)

Overall retail has performed well since 1998, with a 22% increase in jobs, from 353,000 to 433,000 jobs. But the overall performance hides major divergence at the Class level. Specialist retail stores that have shown a growth in employment include London's growing stalls and markets. While the numbers are small, the relative change is large: from 400 to 1,200 jobs.

The fastest-growing category is mail order and internet sales, where the number of jobs has mushroomed from 5,400 to 24,700, or by 357%.

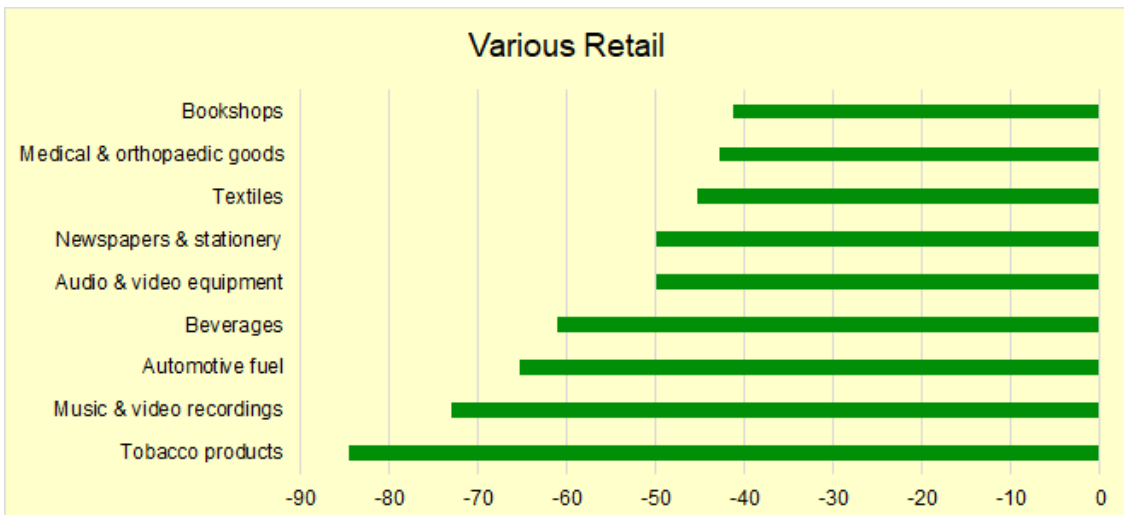
The other most rapidly expanding retailers reflect changing lifestyles and the trend towards higher value goods and services. Games and toys (largely software) cosmetics and toiletries (lifestyle and wellbeing); watches, jewellery and sporting equipment (including bicycles) have all grown strongly.

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These retailers' specific space needs are rarely addressed in local plan policy for example: sites for new/expanded markets including better (secure and chilled) storage; more finessed approach to warehousing and distribution space – major regional centres: breakdown space; drop off locations in retail and residential developments for internet purchases; secure storage of smaller delivery vehicles; reconfiguration/replanning of retail space, especially larger format retail warehouses, out of town centres and department store.



The second chart above shows data for specialist retail stores where employment has fallen sharply (by more than 40%). It can be safely inferred that many of these categories reflect the growth of online trade, including: audio, books, music, newspapers and textiles), while tobacconists reflect social change (although there is no SIC code for the new jobs in vape stores) and automotive fuel mirrors the rise of supermarket fuel over independent retailers.



Not shown, jobs in specialist fruit and veg shops, butchers and fishmongers all feel sharply (20%-30% each).

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Section H (transport) is mainly a public sector activity, and has changed very little in employment terms: 219,300 jobs in 2016 compared to 214,400 jobs in 1998. Section I (accommodation and food) has expanded rapidly from 241,100 jobs to 372,400, or by 54%. Growth has been particularly strong in two areas:

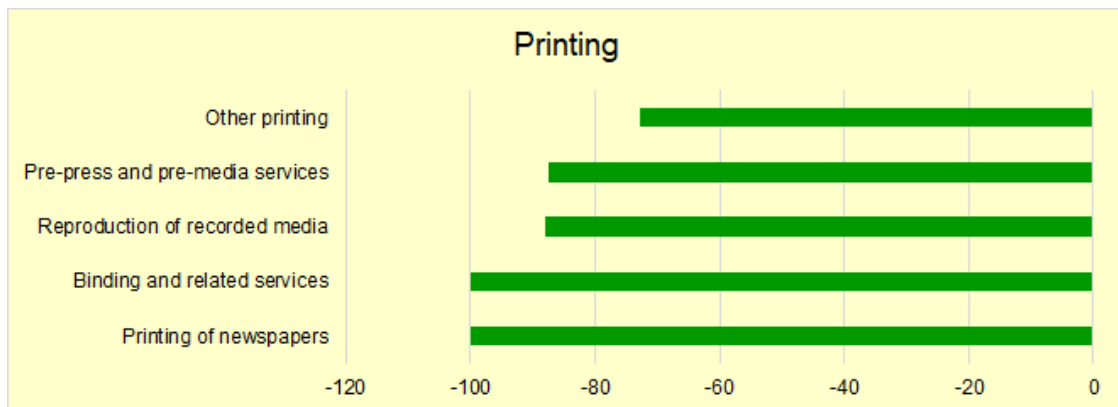
- 90,600 additional jobs in restaurants and mobile food services (85%), perhaps reflecting in part London's rapid adoption of 'café culture' and food markets; and
- 'other food services' (249%) which includes: activities of food service contractors; operation of food concessions at sports and similar facilities, and operation of canteens or cafeterias (e.g. for factories, offices, hospitals or schools) on a concession basis. Many more commercial premises now offer catering as a staff benefit.

6. London's printing presses have shut down

Section J of the SIC covers information and communications. This is a diverse sector with interesting messages about London's changing economy. Here we illustrate publishing, broadcasting and computing.

Printing (Codes: 1811, 1812, 1813, 1814 and 1820)

Printing is in fact part of Section C (manufacturing) but is analysed here because of its relationship to publishing, and the transference of much printing to digital platforms. The chart shows the virtual demise of printing in London, with all printing activities shrinking, by between 72% and 100%. In real terms the number of jobs shrank from 44,600 in 1998, to just 9,200 jobs in 2016. Binding and newspaper printing have disappeared altogether.

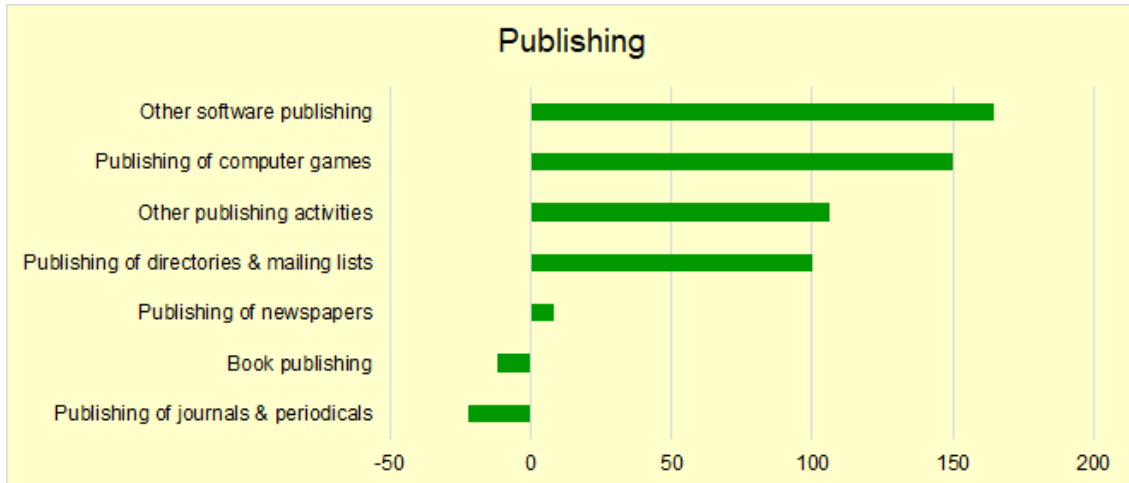


Some of these jobs will have been lost to lower cost locations, and are linked to the 80% drop in jobs in the manufacture of 'paints, varnishes and printing ink' referred to in 'various manufacturing' above). Others will have been absorbed into other Codes as printing processes have become digitised. This transfer of activities is hinted at in the publishing data.

7. And moved to the internet

Publishing (Codes: 5811, 5812, 5813, 5814, 5819, 5821 and 582)

It is little surprise that software publishing and computer games have both seen strong jobs growth.



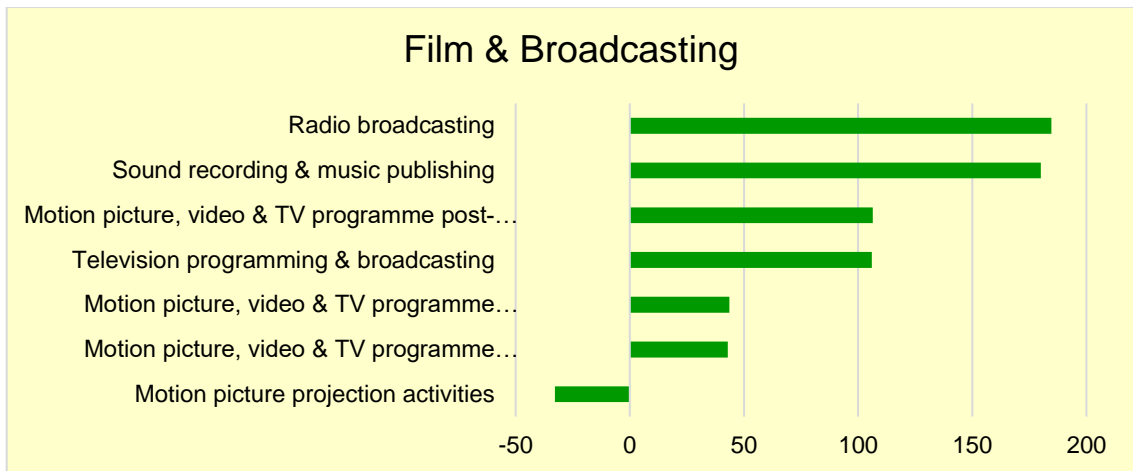
Other publishing activities includes: hard and soft production of catalogues, photos, engravings and postcards, greeting cards, forms, posters, reproduction of works of art and advertising material. These activities also mirror the strong growth in directories and mailing lists.

The rather different performance of newspaper publishing, book publishing and periodical publishing also show the direct impact of the internet, with many more people reading online. Book and journal publishing have, together, lost 7,000 jobs in London since 1998, as more and more jobs move to software publishing.

8. Londoners are watching and listening more

Film and Broadcasting (Codes: 5911, 5912, 5913, 5914, 5920, 6010 and 6020)

Film and Broadcasting jobs have grown from 100,200 to 117,800 since 1998; only the motion picture projection activity has shrunk, probably reflecting digitisation. Many of these jobs are now located within buildings on general industrial estates, rather than on central campuses (e.g. BBC at White City, Elstree) reflecting the rise in freelance and independent producers and supply companies.



Radio broadcasting and sound recording have both witnessed strong jobs growth, albeit with low absolute numbers, from around 2,500 to around 7,000 in both cases. The growth in radio broadcasting reflects the popularity of local stations and internet radio catering for specific ethnic, cultural and social groupings.

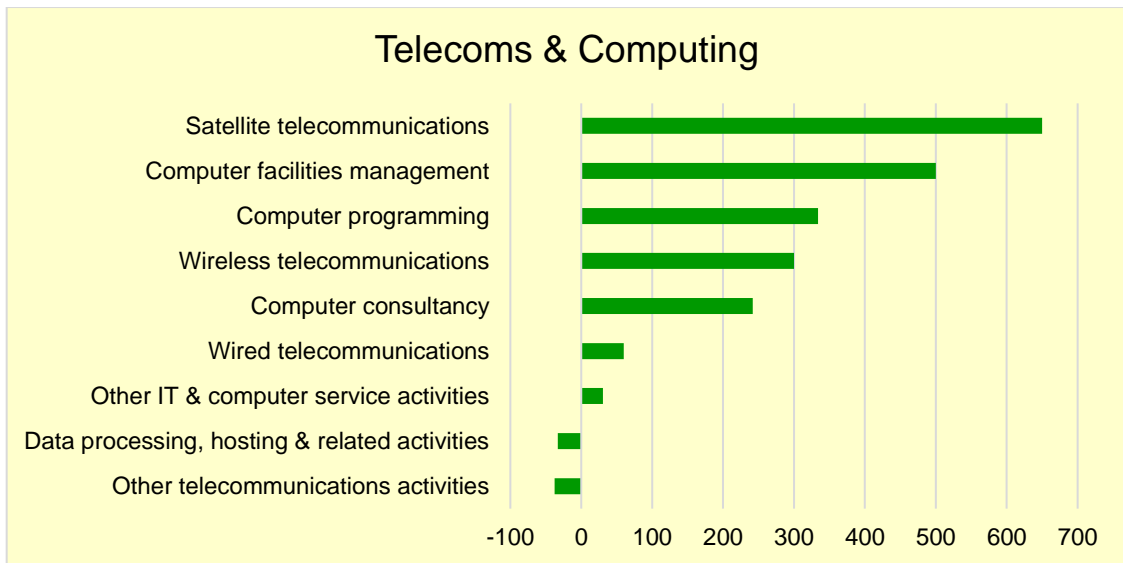
Television programming and broadcasting has remained strong in the capital, despite the BBC's relocation of activities to Salford, Manchester. Film and TV production, post-production and distribution have all see strong growth.

9. While spending more time on their mobiles and laptops

Telecoms and Computing (Codes: 6110, 6120, 6130, 6190, 6201, 6202, 6203, 6209 and 6311)

It is no great surprise that telecoms and computing have witnessed very strong jobs growth since 1998. The greatest growth has occurred in satellite communications which includes: operating, maintaining or providing access to facilities for the transmission of voice, data, text, sound and video using a satellite telecoms infrastructure; delivery of programming received from cable networks, local television stations or radio networks to consumers via direct-to-home satellite systems; and provision of internet access.

Computer programming and consulting have both witnessed strong jobs growth, of 333% and 242%, respectively.



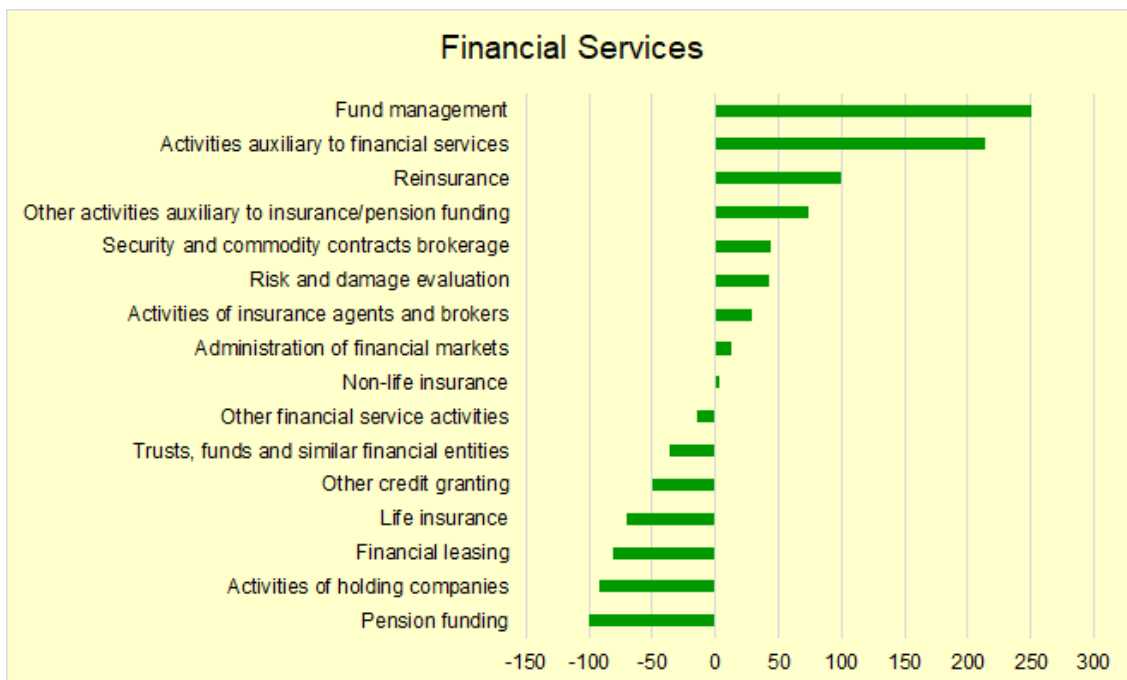
Computer FM includes the provision of on-site management and operation of clients' computer systems and/or data processing facilities, as well as related support services. It suggests a growing outsourcing market for data management. This contrasts with a 37% fall in other telecoms activities, which include provision of specialised telecoms applications, such as satellite tracking, communications telemetry, and radar station operations; provision of internet access over networks between the client and the ISP not owned or controlled by the ISP, such as dial-up Internet access etc, and provision of telephone and internet access in facilities open to the public.

Wireless telecoms includes operating, maintaining or providing access to facilities for the transmission of voice, data, text, sound, and video using a wireless telecommunications infrastructure, and maintaining and operating paging as well as cellular and other wireless telecommunications networks.

10. Growing automation in banking and finance

Financial Services (Codes:6420, 6430, 6491, 6492, 6499, 6511, 6512, 6520, 6530, 6611, 6612, 6619, 6621, 6622, 6629 and 6630)

Section K of the SIC covers financial services. Within a sector-wide growth of 24% (41,200 jobs), financial services jobs change has shown significant variability in different areas. The data also hint at the growing impact of automation and AI.



What seems to be clear is that higher value, advisory activities, such as activities auxiliary to financial services (eg investment and mortgage advice), activities auxiliary to insurance/pension funding (mainly salvage and actuarial), fund management, brokerage and risk management, have proved more resilient than other areas that are increasingly commoditised and/or automated, including credit, leasing, life insurance and pension funding.

Section L of the SIC covers real estate, in terms of jobs involved in buying/selling, renting and managing. Perhaps reflecting London's buoyant housing market over a prolonged period, employment in this sector has more than doubled, from 58,300 in 1998 to 128,300 in 2016. Growth has been particularly strong in management activities reflecting, perhaps, the growth of the buy-to-let market and the growth of institutional interest in the private rented sector.

11. While more people are seeking advice

Professional Services (Codes: 6910, 6920, 7010, 7021, 7022, 7111 and 7112)

Section M of the SIC refers to professional, scientific and technical services. Here, we distinguish professional services, scientific activities and advertising activities.

Professional services jobs are the fastest growing sector in London. Most new jobs (96,900) have been created in Business and Management Consultancy sector (180% increase). Head office jobs have grown by 267% since 1998, from 18,400 jobs to 67,600. This class includes the activities of head offices, centralised administrative offices, corporate offices and district and regional offices. And there are implications, potentially, for planning for growth in CAZ and key office locations and planning for decline in secondary/poorer quality office locations.



Management consulting and PR activities have also grown strongly, by 180% and 154%, respectively. While architectural activities have more than doubled, the absolute increase has been a modest 16,400. The relatively modest percentage growth in accounting and legal jobs might be related to the fact that many firms in these sectors have been growing their regional offices, in order to reduce their central London cost base.

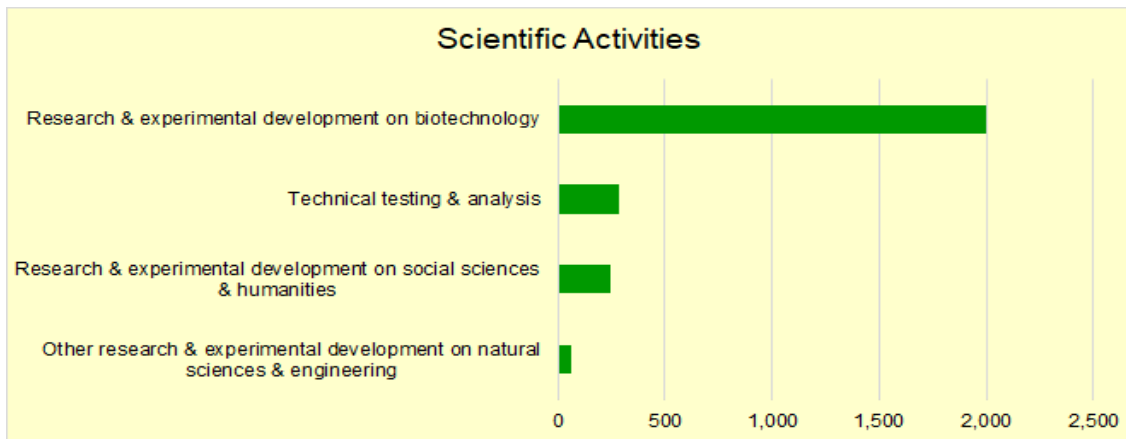
Other professional and scientific activities, which have grown by almost 30% include environmental consulting, quantity surveying, business brokerage, patent brokerage, bill auditing and freight rate information and security consultants.

More than any other sector, professional services have underpinned the growth of London's prime commercial office market over the past two decades.

12. The rise of biotech and science

Scientific Activities (Codes: 7120, 7211, 7219 and 7220). Biotech has not, until recently, been a particularly strong employer in London (with firms preferring the wider Home Counties and beyond). However, in common with some other employers in increasingly competitive employment markets, there has been a drift towards the capital, drawn by links to major universities and teaching hospitals. This is shown below in terms of growth from 100 jobs in 1998 to 2,100 jobs in 2016. While still not a very large employer, the relative growth is very significant, and indicative of an emerging life science cluster centred around UCL, UCH and King's Cross. Occupiers have high expectations of the design of buildings and spaces and the quality of life and social/cultural facilities in these quarters. These are key considerations when identifying locations for future development.

The proposed Institute of Cancer Research Campus at the Royal Marsden Hospital site is an early indicator of the significance of this sector, which is being planned as an internationally recognised cancer research hub of just over 300,000 sq m of research facilities, labs and offices.

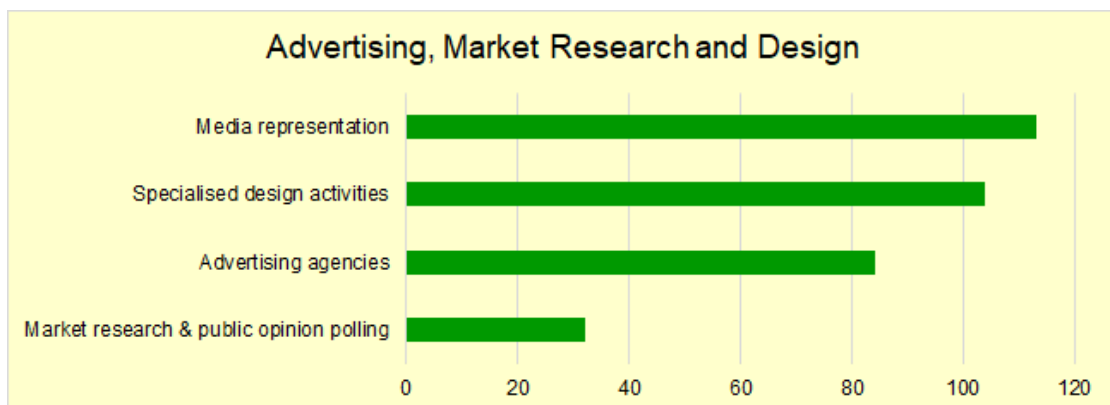


Technical testing and analysis, which has grown from 3,300 jobs to 12,800 (almost 290%), includes the physical, chemical and other analytical testing of all types of materials and products, such as acoustics and vibration testing; testing composition of minerals, and testing in food hygiene and food production.

Research and experimental development, which has grown by 250%, includes research and development in social sciences and the humanities.

13. But we're subject to more selling and more designing

Advertising, Market Research and Design (Codes: 7311, 7312, 7320 and 7410). Perhaps reflecting the phenomenal growth in social media and the internet more widely, jobs across advertising and market research have risen strongly. For example, media representation, including the sale or re-sale of time and space for various media soliciting advertising has grown by 113%, while jobs in ad agencies have grown by 84%.



The data also suggest that more people are buying specialist design services, including the design of fashion related to textiles, shoes, jewellery, furniture and other interior decoration; creating and developing designs and specifications that optimise the use, value and appearance of products; graphic design and interior decoration. Jobs in these areas have doubled since 1998.

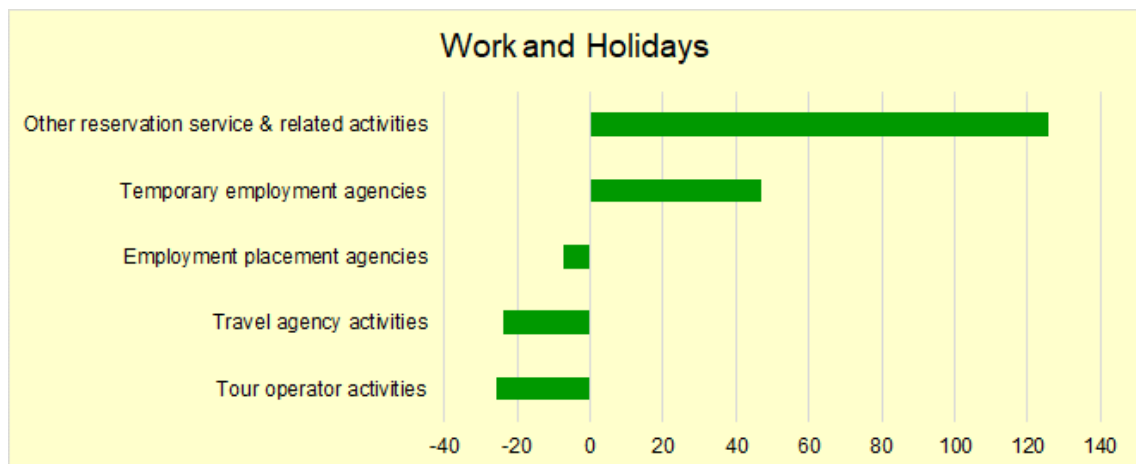
14. More sharing and a growing gig economy

Section N of the SIC includes administration and support services activities. This is a mixed bag of activities. Here, we highlight tourism, employment, security and facilities management.

Tourism and Employment (Codes: 7810, 7820, 7911, 7912, 7990)

Tourism-related activities across London have generally been increasing in recent years, but they are not immune from internet disruption. And the two Classes shown here underline this fact. For example, other reservation services include people intensive activities such as tour guides, reservations for transport, hotels, restaurants, car rentals, entertainment and sport; time-share exchange services; ticket sales for theatrical, sports and other amusement and entertainment events, and provision of travel information to visitors and tourism promotion activities.

By contrast, jobs in travel agents and tour operators have shrunk (by 24% and 26%), respectively, along with the rise in online, independent travellers. This might reflect disintermediation and the rise of the sharing economy (Airbnb, etc). Both these trends have spatial implications, the former on the reduced range of services in high street and the latter on new forms of quasi-residential use that may require new types of planning control in key tourist locations.

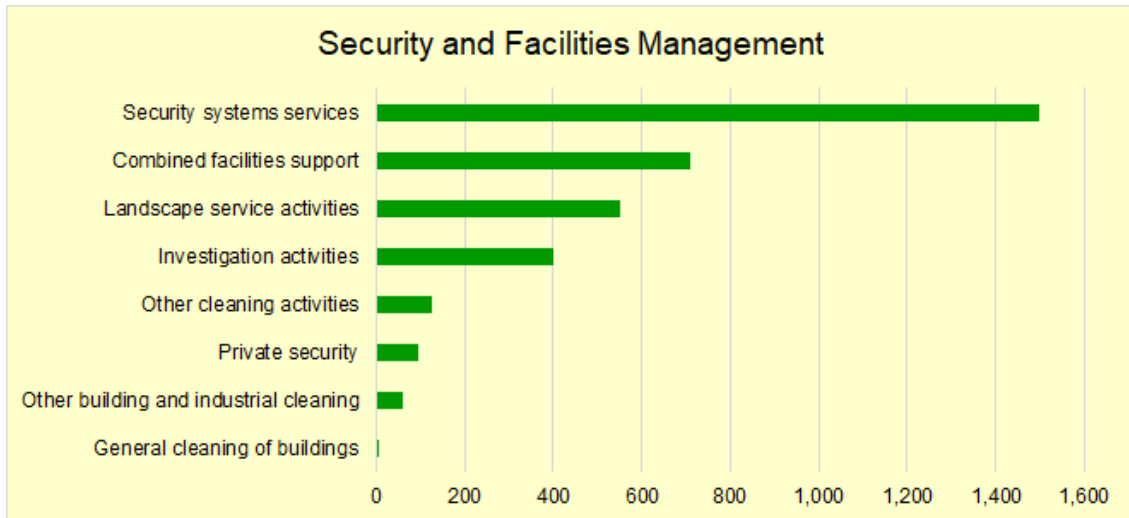


The divergent employment data also present an interesting fact. Thus, employment placement (which involves placing people into permanent jobs) has been shrinking (by 7%), while employment in temporary employment agencies has been expanding (by 47%). Further evidence, perhaps, of the rise of the 'gig economy'.

Security and Facilities Management (Codes: 8010, 8020, 8030, 81110, 8121, 8122, 8129 and 8130)

It is widely known that security is on the rise, but the chart shows the magnitude of the increase. Jobs in this area, including monitoring of electronic security alarm systems, and installing and repairing security systems, has risen from 100 to 1,600. Combined facilities support includes the provision of a combination of support services within a client's facilities, such as cleaning, maintenance, trash disposal, guard and security,

mail routing, reception, laundry and related services to support operations within facilities.

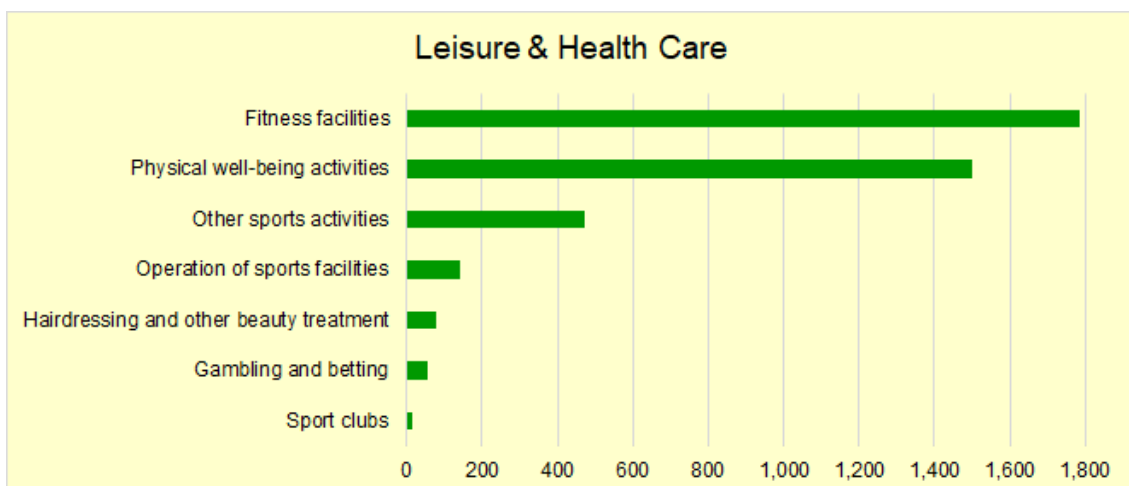


Sections O to T are dominated by public sector activities and so do not form part of this assessment. There are however a few exceptions worth highlighting in terms of their role in London's changing economy: leisure and health care; organisational activities and repairing.

15. Fitter and healthier... but gambling on the future

Leisure and Health Care (Codes: 9200, 9311, 9312, 9313, 9319, 9602 and 9604)

There has been an explosive growth in fitness (gyms) and physical wellbeing (massage salons, saunas, solariums and Turkish baths), with their combined employment rising from 700 in 1998 to 12,900 in 2016. Many of these facilities and jobs are in industrial/employment estates as well as town centres.



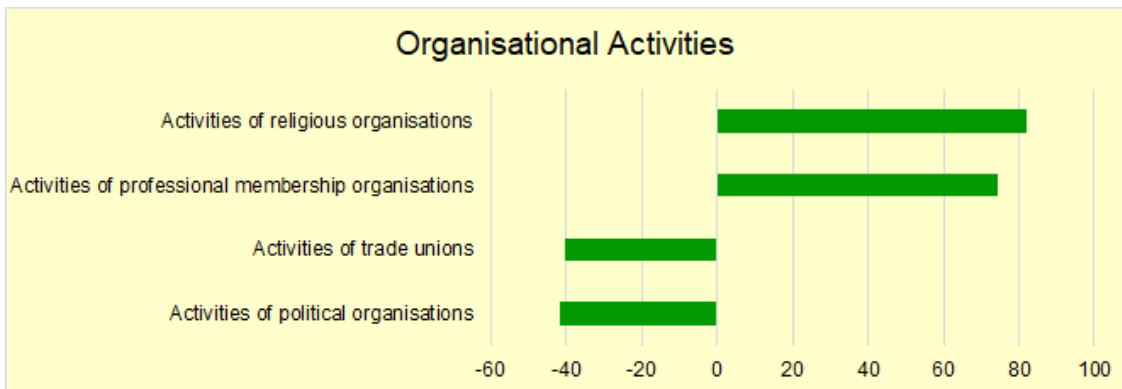
Partly disguised by the scale of the x-axis, other sports activities (organisation, promotion and support) and operation of sports facilities (race tracks, sport fields,

stadia, etc), have grown rapidly, by 470% and 140%, respectively. Gambling and betting jobs have also experienced a 56% increase.

16. More religious ... and less militant

Organisational activities (Codes: 9412, 9420, 9491 and 9492)

There have been large increases of 74% and 82% in religious and professional organisations, respectively; while employment in trades unions and political organisations have each fallen by around 40%. Religious organisations often use or occupy buildings on industrial and employment estates due to their lower cost and a lack of purpose-built facilities.

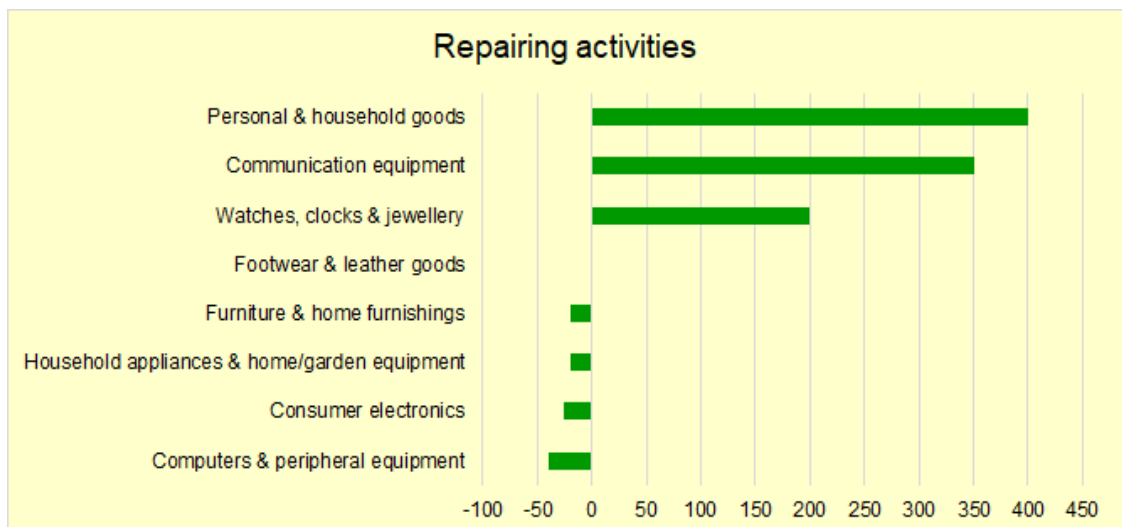


Reducing trade union employment might reflect the rise of the gig economy and general growth in self-employment and micro-businesses.

17. Less mending and making do, except for higher value goods

Repairing activities (Codes: 9511, 9512, 9521, 9522, 9523, 9524, 9525 and 9529)

The repairing of lower value, commoditised goods seems to be falling, while repairing higher value goods is employing significantly more people.



Thus, the repair of furniture, household appliances, consumer electronics (TVs, CD players, VCRs) and computers all involve fewer people, while jewellery, communication equipment (mobile phones) and personal and household goods all employ more people. Personal and household goods include books, clothing, musical instruments and toys. But perhaps most significantly, also include repair of bicycles, which reflects the rapid growth in cycle repair businesses.

18. Conclusions

This paper has summarised key changes in London's private sector economy by analysing the four-digit, Class level of the SIC (2007). In this way it has examined *activities* rather than *sectors*. It is the latter that features in most economic analyses and evidence-based local planning, but it is suggested here that sector-level analysis, while helpful, fails to describe important economic dynamics that ultimately express themselves in terms of premises needs. Local plans and policy should be better informed by more detailed local analysis of *activities*, having regard to their employee base, supply chains and routes to markets, clustering benefits, and their requirements and expectations for the design and quality of locations, quarters and buildings/space.

The data analysed here cover the period 1998 to 2016, when London's overall jobs market grew from 3.8m to nearly 5.0m. The data show enormous variation in terms of growth and shrinkage at the activity level, hinting at changing property requirements and lifestyle/workplace choices that are not reflected in local employment-related policies.

Data on printing and publishing activities clearly show a shift from 'dirty' printing with vats of ink to electronic publishing. The SIC places printing in the manufacturing sector (C) while publishing is a part of information and communications (J). It seems that printing is one of the clearest examples of how the nature of jobs has changed so comprehensively as to merit its transfer from one sector to another. Again, premises requirements have changed from 'dirty' to 'clean' environments.

Just as manufacturing is contracting almost across the board, so film and broadcasting activities are expanding. Reflecting the impact of 24-hour media and socio-cultural changes. In many ways related, telecoms and computing jobs are growing overall, with satellite telecoms, computer FM programming and wireless telecoms (mobiles) witnessing particularly strong growth. However, even within this relatively modern sector, evolution is evident. For example, there are shrinking jobs in data processing and hosting activities.

Financial services is one sector thought to be particularly vulnerable to automation and artificial intelligence, and the activity level data seem to confirm this. For example, in terms of jobs, higher value, advisory activities, such as investment and mortgage advice, insurance funding and fund management have proved more resilient than other areas that are increasingly commoditised and/or automated, including credit, leasing, life insurance and pension funding.

The professional services sector has been particularly strong in terms of jobs growth over the past two decades. While this sector is most frequently associated with accounting and legal activities, our activity level analysis reveals a richer dynamic. According to the data, the most rapidly growing activities are head office jobs,

business consulting and PR and communications. In fact, legal has been relatively weak with a mere 12% growth.

The professional services sector also includes scientific and media services. In terms of the former, the data clearly show London's nascent life sciences cluster, growing from just 100 jobs in 1998 to 2,100 jobs in 2016. This is likely to grow significantly in the future, and is likely to generate a growing demand for lab space – a new feature in the London property market. Media and advertising activities have also grown by at least 80%, and these activities are also likely to grow further in the coming years.

Professional services also include specialist design services, including the design of fashion related to textiles, shoes, jewellery, furniture and other interior decoration; creating and developing designs and specifications that optimise the use, value and appearance of products; graphic design and interior decoration. Jobs in these areas have been growing strongly. Studios and light industrial units are likely to form the core of premises requirements.

There is evidence at the activity level that the sharing economy and gig economy jobs are growing: more people are seeking to fill temporary roles than permanent roles. Facilities management activities are growing strongly, as are security activities.

There has been an explosive growth in fitness (gyms) and physical wellbeing (massage salons, saunas, solariums and Turkish baths), with their combined employment rising from 700 in 1998 to 12,900 in 2016. Further, other sports activities (organisation, promotion and support) and operation of sports facilities (race tracks, sport fields, stadia, etc), have grown rapidly, by 470% and 140%, respectively.

Part of London's growing attraction to fitness and wellbeing is hidden in Section G2 (retail) and in Section S (other services activities). These are retailing cycles (Class 4764, retailing sporting equipment in specialist stores) and repairing cycles (Class 9529, personal and household goods).

London's shrinking *manufacturing* base is widely known, and confirmed here. What is clear, in property terms, is that traditional, 'dirty', factory-based, production is in precipitous decline, while certain activities associated with expanding sectors such as specialist manufacturing, construction and film production are performing comparatively well. This indicates a probable shift in premises needs from 'heavy' specialised plant and buildings to flexible light industrial/employment buildings.

The *warehousing* sector shows wide divergence in terms of its recent employment history. There is evidence at the activity level that jobs related to lower value, bulky goods are in decline while those involved in higher value goods are expanding. Car show rooms exhibit a similar trend as they respond to rising land values with smaller showrooms and tighter stock management. The trend towards smaller warehouse units is likely to sharpen as online trading grows rapidly.

The *retail* sector is similarly diverse in terms of growth and shrinkage, and overall, the impact of the internet and online trade is obvious. Thus, jobs related to commoditised products are in sharp retreat, while those relating to higher value, comparative goods such as software, cosmetics and jewellery are growing. Again, this speaks loudly about changing premises requirements. Overall there will be demand for fewer

generalist shops, but an increase in town centre units offering more than simply the goods themselves (advice, comparison, experience, etc) and a wider range of complementary employment activities - gyms, places of worship, specialist manufacturers, business centres, last mile distribution centres and so on.

Outlook There is, in short, a widescale re-shuffling, or constant re-ordering of London's economic activities which belies the relative calmness suggested by aggregated data at the sector level. This largely hidden evolution in business activity leads to a continuous process of adjustment in property and locational needs. There is a growing opportunity to consider the use of land at a more disaggregated level and to create and manage buildings appropriate to those needs. This requires a better understanding of activities (present and future) at the local level through effective business engagement.

The changes in the activities across the three "traditional" sectors (industrial, distribution, retail) has significant planning and policy implications. This is not just about the total amount of traditional/specialist industrial/employment land (SIL) and floorspace to be provided or retained. It should be about identifying which types of existing or potential employment activities:

- need or want to be located on long-term protected industrial sites – due to significant capital investment, special locational requirements and/or negative environmental impacts;
- can or want to be located on long-term protected business/commerce parks - due to business links, clustering or supply chain benefits;
- need affordable space;
- can and should be integrated within residential areas and/or town centres with no adverse effects and/or positive benefits, including releasing industrial land and premises on protected sites, and
- can be co-located in such locations but need/benefit from being (a) separated horizontally (co- located within the same building) or (b) separated vertically (co-located within the same area but in separate buildings/areas).

Some of the wider property, land use planning and policy implications of the changing patterns of activity are considered in more depth in the linked Ramidus report, *Commercial Real Estate: Planning for Change*.¹

¹ To be found at: <https://www.ramidus.co.uk/knowledge/>

Appendix One: Section and Class SIC 2007 Breakdown

A	0100	DEFRA/Scottish Executive Agricultural Data
A	0111	Growing of cereals (except rice), leguminous crops and oil seeds
A	0112	Growing of rice
A	0113	Growing of vegetables and melons, roots and tubers
A	0114	Growing of sugar cane
A	0115	Growing of tobacco
A	0116	Growing of fibre crops
A	0119	Growing of other non-perennial crops
A	0121	Growing of grapes
A	0122	Growing of tropical and subtropical fruits
A	0123	Growing of citrus fruits
A	0124	Growing of pome fruits and stone fruits
A	0125	Growing of other tree and bush fruits and nuts
A	0126	Growing of oleaginous fruits
A	0127	Growing of beverage crops
A	0128	Growing of spices, aromatic, drug and pharmaceutical crops
A	0129	Growing of other perennial crops
A	0130	Plant propagation
A	0141	Raising of dairy cattle
A	0142	Raising of other cattle and buffaloes
A	0143	Raising of horses and other equines
A	0144	Raising of camels and camelids
A	0145	Raising of sheep and goats
A	0146	Raising of swine/pigs
A	0147	Raising of poultry
A	0149	Raising of other animals
A	0150	Mixed farming
A	0161	Support activities for crop production
A	0162	Support activities for animal production
A	0163	Post-harvest crop activities
A	0164	Seed processing for propagation
A	0170	Hunting, trapping and related service activities
A	0210	Silviculture and other forestry activities
A	0220	Logging
A	0230	Gathering of wild growing non-wood products
A	0240	Support services to forestry
A	0311	Marine fishing
A	0312	Freshwater fishing
A	0321	Marine aquaculture
A	0322	Freshwater aquaculture
B	0510	Mining of hard coal
B	0520	Mining of lignite
B	0610	Extraction of crude petroleum
B	0620	Extraction of natural gas
B	0710	Mining of iron ores
B	0721	Mining of uranium and thorium ores
B	0729	Mining of other non-ferrous metal ores
B	0811	Quarrying of ornamental and building stone, limestone, gypsum, chalk and slate
B	0812	Operation of gravel and sand pits; mining of clays and kaolin
B	0891	Mining of chemical and fertiliser minerals

London's new economy in numbers

B	0892	Extraction of peat
B	0893	Extraction of salt
B	0899	Other mining and quarrying n.e.c.
B	0910	Support activities for petroleum and natural gas extraction
B	0990	Support activities for other mining and quarrying
C	1011	Processing and preserving of meat
C	1012	Processing and preserving of poultry meat
C	1013	Production of meat and poultry meat products
C	1020	Processing and preserving of fish, crustaceans and molluscs
C	1031	Processing and preserving of potatoes
C	1032	Manufacture of fruit and vegetable juice
C	1039	Other processing and preserving of fruit and vegetables
C	1041	Manufacture of oils and fats
C	1042	Manufacture of margarine and similar edible fats
C	1051	Operation of dairies and cheese making
C	1052	Manufacture of ice cream
C	1061	Manufacture of grain mill products
C	1062	Manufacture of starches and starch products
C	1071	Manufacture of bread; manufacture of fresh pastry goods and cakes
C	1072	Manufacture of rusks and biscuits; manufacture of preserved pastry goods and cakes
C	1073	Manufacture of macaroni, noodles, couscous and similar farinaceous products
C	1081	Manufacture of sugar
C	1082	Manufacture of cocoa, chocolate and sugar confectionery
C	1083	Processing of tea and coffee
C	1084	Manufacture of condiments and seasonings
C	1085	Manufacture of prepared meals and dishes
C	1086	Manufacture of homogenised food preparations and dietetic food
C	1089	Manufacture of other food products n.e.c.
C	1091	Manufacture of prepared feeds for farm animals
C	1092	Manufacture of prepared pet foods
C	1101	Distilling, rectifying and blending of spirits
C	1102	Manufacture of wine from grape
C	1103	Manufacture of cider and other fruit wines
C	1104	Manufacture of other non-distilled fermented beverages
C	1105	Manufacture of beer
C	1106	Manufacture of malt
C	1107	Manufacture of soft drinks; production of mineral waters and other bottled waters
C	1200	Manufacture of tobacco products
C	1310	Preparation and spinning of textile fibres
C	1320	Weaving of textiles
C	1330	Finishing of textiles
C	1391	Manufacture of knitted and crocheted fabrics
C	1392	Manufacture of made-up textile articles, except apparel
C	1393	Manufacture of carpets and rugs
C	1394	Manufacture of cordage, rope, twine and netting
C	1395	Manufacture of non-wovens and articles made from non-wovens, except apparel
C	1396	Manufacture of other technical and industrial textiles
C	1399	Manufacture of other textiles n.e.c.
C	1411	Manufacture of leather clothes
C	1412	Manufacture of workwear

London's new economy in numbers

C	1413	Manufacture of other outerwear
C	1414	Manufacture of underwear
C	1419	Manufacture of other wearing apparel and accessories
C	1420	Manufacture of articles of fur
C	1431	Manufacture of knitted and crocheted hosiery
C	1439	Manufacture of other knitted and crocheted apparel
C	1511	Tanning and dressing of leather; dressing and dyeing of fur
C	1512	Manufacture of luggage, handbags and the like, saddlery and harness
C	1520	Manufacture of footwear
C	1610	Sawmilling and planing of wood
C	1621	Manufacture of veneer sheets and wood-based panels
C	1622	Manufacture of assembled parquet floors
C	1623	Manufacture of other builders' carpentry and joinery
C	1624	Manufacture of wooden containers
C	1629	Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting
C	1711	Manufacture of pulp
C	1712	Manufacture of paper and paperboard
C	1721	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard
C	1722	Manufacture of household and sanitary goods and of toilet requisites
C	1723	Manufacture of paper stationery AND Manufacture of other articles of paper and paperboard n.e.c.
C	1724	Manufacture of wallpaper
C	1729	*Aggregated into 1723*
C	1811	Printing of newspapers
C	1812	Other printing
C	1813	Pre-press and pre-media services
C	1814	Binding and related services
C	1820	Reproduction of recorded media
C	1910	Manufacture of coke oven products
C	1920	Manufacture of refined petroleum products
C	2011	Manufacture of industrial gases
C	2012	Manufacture of dyes and pigments
C	2013	Manufacture of other inorganic basic chemicals
C	2014	Manufacture of other organic basic chemicals
C	2015	Manufacture of fertilisers and nitrogen compounds
C	2016	Manufacture of plastics in primary forms
C	2017	Manufacture of synthetic rubber in primary forms
C	2020	Manufacture of pesticides and other agrochemical products
C	2030	Manufacture of paints, varnishes and similar coatings, printing ink and mastics
C	2041	Manufacture of soap and detergents, cleaning and polishing preparations
C	2042	Manufacture of perfumes and toilet preparations
C	2051	Manufacture of explosives
C	2052	Manufacture of glues
C	2053	Manufacture of essential oils
C	2059	Manufacture of other chemical products n.e.c.
C	2060	Manufacture of man-made fibres
C	2110	Manufacture of basic pharmaceutical products
C	2120	Manufacture of pharmaceutical preparations
C	2211	Manufacture of rubber tyres and tubes; retreading and rebuilding of rubber tyres
C	2219	Manufacture of other rubber products
C	2221	Manufacture of plastic plates, sheets, tubes and profiles

London's new economy in numbers

C	2222	Manufacture of plastic packing goods
C	2223	Manufacture of builders' ware of plastic
C	2229	Manufacture of other plastic products
C	2311	Manufacture of flat glass
C	2312	Shaping and processing of flat glass
C	2313	Manufacture of hollow glass
C	2314	Manufacture of glass fibres
C	2319	Manufacture and processing of other glass, including technical glassware
C	2320	Manufacture of refractory products
C	2331	Manufacture of ceramic tiles and flags
C	2332	Manufacture of bricks, tiles and construction products, in baked clay
C	2341	Manufacture of ceramic household and ornamental articles
C	2342	Manufacture of ceramic sanitary fixtures
C	2343	Manufacture of ceramic insulators and insulating fittings
C	2344	Manufacture of other technical ceramic products
C	2349	Manufacture of other ceramic products
C	2351	Manufacture of cement
C	2352	Manufacture of lime and plaster
C	2361	Manufacture of concrete products for construction purposes
C	2362	Manufacture of plaster products for construction purposes
C	2363	Manufacture of ready-mixed concrete
C	2364	Manufacture of mortars
C	2365	Manufacture of fibre cement
C	2369	Manufacture of other articles of concrete, plaster and cement
C	2370	Cutting, shaping and finishing of stone
C	2391	Production of abrasive products
C	2399	Manufacture of other non-metallic mineral products n.e.c.
C	2410	Manufacture of basic iron and steel and of ferro-alloys
C	2420	Manufacture of tubes, pipes, hollow profiles and related fittings, of steel
C	2431	Cold drawing of bars
C	2432	Cold rolling of narrow strip
C	2433	Cold forming or folding
C	2434	Cold drawing of wire
C	2441	Precious metals production
C	2442	Aluminium production
C	2443	Lead, zinc and tin production
C	2444	Copper production
C	2445	Other non-ferrous metal production
C	2446	Processing of nuclear fuel
C	2451	Casting of iron
C	2452	Casting of steel
C	2453	Casting of light metals
C	2454	Casting of other non-ferrous metals
C	2511	Manufacture of metal structures and parts of structures
C	2512	Manufacture of doors and windows of metal
C	2521	Manufacture of central heating radiators and boilers
C	2529	Manufacture of other tanks, reservoirs and containers of metal
C	2530	Manufacture of steam generators, except central heating hot water boilers
C	2540	Manufacture of weapons and ammunition
C	2550	Forging, pressing, stamping and roll-forming of metal; powder metallurgy

London's new economy in numbers

C	2561	Treatment and coating of metals
C	2562	Machining
C	2571	Manufacture of cutlery
C	2572	Manufacture of locks and hinges
C	2573	Manufacture of tools
C	2591	Manufacture of steel drums and similar containers
C	2592	Manufacture of light metal packaging
C	2593	Manufacture of wire products, chain and springs
C	2594	Manufacture of fasteners and screw machine products
C	2599	Manufacture of other fabricated metal products n.e.c.
C	2611	Manufacture of electronic components
C	2612	Manufacture of loaded electronic boards
C	2620	Manufacture of computers and peripheral equipment
C	2630	Manufacture of communication equipment
C	2640	Manufacture of consumer electronics
C	2651	Manufacture of instruments and appliances for measuring, testing and navigation
C	2652	Manufacture of watches and clocks
C	2660	Manufacture of irradiation, electromedical and electrotherapeutic equipment
C	2670	Manufacture of optical instruments and photographic equipment
C	2680	Manufacture of magnetic and optical media
C	2711	Manufacture of electric motors, generators and transformers
C	2712	Manufacture of electricity distribution and control apparatus
C	2720	Manufacture of batteries and accumulators
C	2731	Manufacture of fibre optic cables
C	2732	Manufacture of other electronic and electric wires and cables
C	2733	Manufacture of wiring devices
C	2740	Manufacture of electric lighting equipment
C	2751	Manufacture of electric domestic appliances
C	2752	Manufacture of non-electric domestic appliances
C	2790	Manufacture of other electrical equipment
C	2811	Manufacture of engines and turbines, except aircraft, vehicle and cycle engines
C	2812	Manufacture of fluid power equipment
C	2813	Manufacture of other pumps and compressors
C	2814	Manufacture of other taps and valves
C	2815	Manufacture of bearings, gears, gearing and driving elements
C	2821	Manufacture of ovens, furnaces and furnace burners
C	2822	Manufacture of lifting and handling equipment
C	2823	Manufacture of office machinery and equipment (except computers and peripheral equipment)
C	2824	Manufacture of power-driven hand tools AND Manufacture of other general-purpose machinery
C	2825	Manufacture of non-domestic cooling and ventilation equipment
C	2829	*Aggregated into 2824*
C	2830	Manufacture of agricultural and forestry machinery
C	2841	Manufacture of metal forming machinery AND Manufacture of other machine tools
C	2849	*Aggregated into 2841*
C	2891	Manufacture of machinery for metallurgy
C	2892	Manufacture of machinery for mining, quarrying and construction
C	2893	Manufacture of machinery for food, beverage and tobacco processing
C	2894	Manufacture of machinery for textile, apparel and leather production
C	2895	Manufacture of machinery for paper and paperboard production
C	2896	Manufacture of plastics and rubber machinery

London's new economy in numbers

C	2899	Manufacture of other special-purpose machinery n.e.c.
C	2910	Manufacture of motor vehicles
C	2920	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers
C	2931	Manufacture of electrical and electronic equipment for motor vehicles
C	2932	Manufacture of other parts and accessories for motor vehicles
C	3011	Building of ships and floating structures
C	3012	Building of pleasure and sporting boats
C	3020	Manufacture of railway locomotives and rolling stock
C	3030	Manufacture of air and spacecraft and related machinery
C	3040	Manufacture of military fighting vehicles
C	3091	Manufacture of motorcycles
C	3092	Manufacture of bicycles and invalid carriages
C	3099	Manufacture of other transport equipment n.e.c.
C	3101	Manufacture of office and shop furniture
C	3102	Manufacture of kitchen furniture
C	3103	Manufacture of mattresses
C	3109	Manufacture of other furniture
C	3211	Striking of coins
C	3212	Manufacture of jewellery and related articles
C	3213	Manufacture of imitation jewellery and related articles
C	3220	Manufacture of musical instruments
C	3230	Manufacture of sports goods
C	3240	Manufacture of games and toys
C	3250	Manufacture of medical and dental instruments and supplies
C	3291	Manufacture of brooms and brushes
C	3299	Other manufacturing n.e.c.
C	3311	Repair of fabricated metal products
C	3312	Repair of machinery
C	3313	Repair of electronic and optical equipment
C	3314	Repair of electrical equipment
C	3315	Repair and maintenance of ships and boats
C	3316	Repair and maintenance of aircraft and spacecraft
C	3317	Repair and maintenance of transport equipment n.e.c.
C	3319	Repair of other equipment
C	3320	Installation of industrial machinery and equipment
D	3511	Production of electricity
D	3512	Transmission of electricity
D	3513	Distribution of electricity
D	3514	Trade of electricity
D	3521	Manufacture of gas, distribution of gaseous fuels through mains, trade of gas through mains
D	3522	*Aggregated into 3521*
D	3523	*Aggregated into 3521*
D	3530	Steam and air conditioning supply
E	3600	Water collection, treatment and supply
E	3700	Sewerage
E	3811	Collection of non-hazardous waste
E	3812	Collection of hazardous waste
E	3821	Treatment and disposal of non-hazardous waste
E	3822	Treatment and disposal of hazardous waste
E	3831	Dismantling of wrecks

London's new economy in numbers

E	3832	Recovery of sorted materials
E	3900	Remediation activities and other waste management services
F	4110	Development of building projects
F	4120	Construction of residential and non-residential buildings
F	4211	Construction of roads and motorways
F	4212	Construction of railways and underground railways
F	4213	Construction of bridges and tunnels
F	4221	Construction of utility projects for fluids
F	4222	Construction of utility projects for electricity and telecommunications
F	4291	Construction of water projects
F	4299	Construction of other civil engineering projects n.e.c.
F	4311	Demolition
F	4312	Site preparation
F	4313	Test drilling and boring
F	4321	Electrical installation
F	4322	Plumbing, heat and air-conditioning installation
F	4329	Other construction installation
F	4331	Plastering
F	4332	Joinery installation
F	4333	Floor and wall covering
F	4334	Painting and glazing
F	4339	Other building completion and finishing
F	4391	Roofing activities
F	4399	Other specialised construction activities n.e.c.
G	4511	Sale of cars and light motor vehicles
G	4519	Sale of other motor vehicles
G	4520	Maintenance and repair of motor vehicles
G	4531	Wholesale trade of motor vehicle parts and accessories
G	4532	Retail trade of motor vehicle parts and accessories
G	4540	Sale, maintenance and repair of motorcycles and related parts and accessories
G	4611	Agents involved in the sale of agricultural raw materials, live animals, textile raw materials
G	4612	Agents involved in the sale of fuels, ores, metals and industrial chemicals
G	4613	Agents involved in the sale of timber and building materials
G	4614	Agents involved in the sale of machinery, industrial equipment, ships and aircraft
G	4615	Agents involved in the sale of furniture, household goods, hardware and ironmongery
G	4616	Agents involved in the sale of textiles, clothing, fur, footwear and leather goods
G	4617	Agents involved in the sale of food, beverages and tobacco
G	4618	Agents specialised in the sale of other particular products
G	4619	Agents involved in the sale of a variety of goods
G	4621	Wholesale of grain, unmanufactured tobacco, seeds and animal feeds
G	4622	Wholesale of flowers and plants
G	4623	Wholesale of live animals
G	4624	Wholesale of hides, skins and leather
G	4631	Wholesale of fruit and vegetables
G	4632	Wholesale of meat and meat products
G	4633	Wholesale of dairy products, eggs and edible oils and fats
G	4634	Wholesale of beverages
G	4635	Wholesale of tobacco products
G	4636	Wholesale of sugar and chocolate and sugar confectionery
G	4637	Wholesale of coffee, tea, cocoa and spices

London's new economy in numbers

G	4638	Wholesale of other food, including fish, crustaceans and molluscs
G	4639	Non-specialised wholesale of food, beverages and tobacco
G	4641	Wholesale of textiles
G	4642	Wholesale of clothing and footwear
G	4643	Wholesale of electrical household appliances
G	4644	Wholesale of china and glassware and cleaning materials
G	4645	Wholesale of perfume and cosmetics
G	4646	Wholesale of pharmaceutical goods
G	4647	Wholesale of furniture, carpets and lighting equipment
G	4648	Wholesale of watches and jewellery
G	4649	Wholesale of other household goods
G	4651	Wholesale of computers, computer peripheral equipment and software
G	4652	Wholesale of electronic and telecommunications equipment and parts
G	4661	Wholesale of agricultural machinery, equipment and supplies
G	4662	Wholesale of machine tools
G	4663	Wholesale of mining, construction and civil engineering machinery
G	4664	Wholesale of machinery for the textile industry and of sewing and knitting machines
G	4665	Wholesale of office furniture
G	4666	Wholesale of other office machinery and equipment
G	4669	Wholesale of other machinery and equipment
G	4671	Wholesale of solid, liquid and gaseous fuels and related products
G	4672	Wholesale of metals and metal ores
G	4673	Wholesale of wood, construction materials and sanitary equipment
G	4674	Wholesale of hardware, plumbing and heating equipment and supplies
G	4675	Wholesale of chemical products
G	4676	Wholesale of other intermediate products
G	4677	Wholesale of waste and scrap
G	4690	Non-specialised wholesale trade
G	4711	Retail sale in non-specialised stores with food, beverages or tobacco predominating
G	4719	Other retail sale in non-specialised stores
G	4721	Retail sale of fruit and vegetables in specialised stores
G	4722	Retail sale of meat and meat products in specialised stores
G	4723	Retail sale of fish, crustaceans and molluscs in specialised stores
G	4724	Retail sale of bread, cakes, flour confectionery and sugar confectionery in specialised stores
G	4725	Retail sale of beverages in specialised stores
G	4726	Retail sale of tobacco products in specialised stores
G	4729	Other retail sale of food in specialised stores
G	4730	Retail sale of automotive fuel in specialised stores
G	4741	Retail sale of computers, peripheral units and software in specialised stores
G	4742	Retail sale of telecommunications equipment in specialised stores
G	4743	Retail sale of audio and video equipment in specialised stores
G	4751	Retail sale of textiles in specialised stores
G	4752	Retail sale of hardware, paints and glass in specialised stores
G	4753	Retail sale of carpets, rugs, wall and floor coverings in specialised stores
G	4754	Retail sale of electrical household appliances in specialised stores
G	4759	Retail sale of furniture, lighting equipment and other household articles in specialised stores
G	4761	Retail sale of books in specialised stores
G	4762	Retail sale of newspapers and stationery in specialised stores
G	4763	Retail sale of music and video recordings in specialised stores
G	4764	Retail sale of sporting equipment in specialised stores

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G	4765	Retail sale of games and toys in specialised stores
G	4771	Retail sale of clothing in specialised stores
G	4772	Retail sale of footwear and leather goods in specialised stores
G	4773	Dispensing chemist in specialised stores
G	4774	Retail sale of medical and orthopaedic goods in specialised stores
G	4775	Retail sale of cosmetic and toilet articles in specialised stores
G	4776	Retail sale of flowers, plants, seeds, fertilisers, pet animals and pet food in specialised stores
G	4777	Retail sale of watches and jewellery in specialised stores
G	4778	Other retail sale of new goods in specialised stores
G	4779	Retail sale of second-hand goods in stores
G	4781	Retail sale via stalls and markets of food, beverages and tobacco products
G	4782	Retail sale via stalls and markets of textiles, clothing and footwear
G	4789	Retail sale via stalls and markets of other goods
G	4791	Retail sale via mail order houses or via Internet
G	4799	Other retail sale not in stores, stalls or markets
H	4910	Passenger rail transport, interurban
H	4920	Freight rail transport
H	4931	Urban and suburban passenger land transport
H	4932	Taxi operation
H	4939	Other passenger land transport n.e.c.
H	4941	Freight transport by road
H	4942	Removal services
H	4950	Transport via pipeline
H	5010	Sea and coastal passenger water transport
H	5020	Sea and coastal freight water transport
H	5030	Inland passenger water transport
H	5040	Inland freight water transport
H	5110	Passenger air transport
H	5121	Freight air transport
H	5122	Space transport
H	5210	Warehousing and storage
H	5221	Service activities incidental to land transportation
H	5222	Service activities incidental to water transportation
H	5223	Service activities incidental to air transportation
H	5224	Cargo handling
H	5229	Other transportation support activities
H	5310	Postal activities under universal service obligation
H	5320	Other postal and courier activities
I	5510	Hotels and similar accommodation
I	5520	Holiday and other short stay accommodation
I	5530	Camping grounds, recreational vehicle parks and trailer parks
I	5590	Other accommodation
I	5610	Restaurants and mobile food service activities
I	5621	Event catering activities
I	5629	Other food service activities
I	5630	Beverage serving activities
J	5811	Book publishing
J	5812	Publishing of directories and mailing lists
J	5813	Publishing of newspapers
J	5814	Publishing of journals and periodicals

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J	5819	Other publishing activities
J	5821	Publishing of computer games
J	5829	Other software publishing
J	5911	Motion picture, video and television programme production activities
J	5912	Motion picture, video and television programme post-production activities
J	5913	Motion picture, video and television programme distribution activities
J	5914	Motion picture projection activities
J	5920	Sound recording and music publishing activities
J	6010	Radio broadcasting
J	6020	Television programming and broadcasting activities
J	6110	Wired telecommunications activities
J	6120	Wireless telecommunications activities
J	6130	Satellite telecommunications activities
J	6190	Other telecommunications activities
J	6201	Computer programming activities
J	6202	Computer consultancy activities
J	6203	Computer facilities management activities
J	6209	Other information technology and computer service activities
J	6311	Data processing, hosting and related activities
J	6312	Web portals
J	6391	News agency activities AND Other information service activities n.e.c.
J	6399	*Aggregated into 6391*
K	6411	Central banking
K	6419	Other monetary intermediation
K	6420	Activities of holding companies
K	6430	Trusts, funds and similar financial entities
K	6491	Financial leasing
K	6492	Other credit granting
K	6499	Other financial service activities, except insurance and pension funding, n.e.c.
K	6511	Life insurance
K	6512	Non-life insurance
K	6520	Reinsurance
K	6530	Pension funding
K	6611	Administration of financial markets
K	6612	Security and commodity contracts brokerage
K	6619	Other activities auxiliary to financial services, except insurance and pension funding
K	6621	Risk and damage evaluation
K	6622	Activities of insurance agents and brokers
K	6629	Other activities auxiliary to insurance and pension funding
K	6630	Fund management activities
L	6810	Buying and selling of own real estate
L	6820	Renting and operating of own or leased real estate
L	6831	Real estate agencies
L	6832	Management of real estate on a fee or contract basis
M	6910	Legal activities
M	6920	Accounting, bookkeeping and auditing activities; tax consultancy
M	7010	Activities of head offices
M	7021	Public relations and communication activities
M	7022	Business and other management consultancy activities
M	7111	Architectural activities

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M	7112	Engineering activities and related technical consultancy
M	7120	Technical testing and analysis
M	7211	Research and experimental development on biotechnology
M	7219	Other research and experimental development on natural sciences and engineering
M	7220	Research and experimental development on social sciences and humanities
M	7311	Advertising agencies
M	7312	Media representation
M	7320	Market research and public opinion polling
M	7410	Specialised design activities
M	7420	Photographic activities
M	7430	Translation and interpretation activities
M	7490	Other professional, scientific and technical activities n.e.c.
M	7500	Veterinary activities
N	7711	Renting and leasing of cars and light motor vehicles
N	7712	Renting and leasing of trucks
N	7721	Renting and leasing of recreational and sports goods
N	7722	Renting of video tapes and disks
N	7729	Renting and leasing of other personal and household goods
N	7731	Renting and leasing of agricultural machinery and equipment
N	7732	Renting and leasing of construction and civil engineering machinery and equipment
N	7733	Renting and leasing of office machinery and equipment (including computers)
N	7734	Renting and leasing of water transport equipment
N	7735	Renting and leasing of air transport equipment
N	7739	Renting and leasing of other machinery, equipment and tangible goods n.e.c.
N	7740	Leasing of intellectual property and similar products, except copyrighted works
N	7810	Activities of employment placement agencies
N	7820	Temporary employment agency activities
N	7830	Other human resources provision
N	7911	Travel agency activities
N	7912	Tour operator activities
N	7990	Other reservation service and related activities
N	8010	Private security activities
N	8020	Security systems service activities
N	8030	Investigation activities
N	8110	Combined facilities support activities
N	8121	General cleaning of buildings
N	8122	Other building and industrial cleaning activities
N	8129	Other cleaning activities
N	8130	Landscape service activities
N	8211	Combined office admin activities, photocopying, document preparation and office support activities
N	8219	*Aggregated into 8211*
N	8220	Activities of call centres
N	8230	Convention and trade show organizers
N	8291	Collection agencies, credit bureaus, packaging activities
N	8292	*Aggregated into 8291*
N	8299	*Aggregated into 8291*
O	8411	General public administration activities
O	8412	Regulation of the activities of providing health care, education, cultural service
O	8413	Regulation of and contribution to more efficient operation of businesses
O	8421	Foreign affairs

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O	8422	Defence activities
O	8423	Justice and judicial activities
O	8424	Public order and safety activities
O	8425	Fire service activities
O	8430	Compulsory social security activities
P	8510	Pre-primary education
P	8520	Primary education
P	8531	General secondary education
P	8532	Technical and vocational secondary education
P	8541	Post-secondary non-tertiary education
P	8542	Tertiary education
P	8551	Sports and recreation education
P	8552	Cultural education
P	8553	Driving school activities
P	8559	Other education n.e.c.
P	8560	Educational support activities
Q	8610	Hospital activities
Q	8621	General medical practice activities
Q	8622	Specialist medical practice activities
Q	8623	Dental practice activities
Q	8690	Other human health activities
Q	8710	Residential nursing care activities
Q	8720	Residential care activities for learning disabilities, mental health and substance abuse
Q	8730	Residential care activities for the elderly and disabled
Q	8790	Other residential care activities
Q	8810	Social work activities without accommodation for the elderly and disabled
Q	8891	Child day-care activities
Q	8899	Other social work activities without accommodation n.e.c.
R	9001	Performing arts
R	9002	Support activities to performing arts
R	9003	Artistic creation
R	9004	Operation of arts facilities
R	9101	Library and archive activities
R	9102	Museum activities
R	9103	Operation of historical sites and buildings and similar visitor attractions
R	9104	Botanical and zoological gardens and nature reserve activities
R	9200	Gambling and betting activities
R	9311	Operation of sports facilities
R	9312	Activities of sport clubs
R	9313	Fitness facilities
R	9319	Other sports activities
R	9321	Activities of amusement parks and theme parks
R	9329	Other amusement and recreation activities
S	9411	Activities of business and employers membership organisations
S	9412	Activities of professional membership organisations
S	9420	Activities of trade unions
S	9491	Activities of religious organisations
S	9492	Activities of political organisations
S	9499	Activities of other membership organisations n.e.c.
S	9511	Repair of computers and peripheral equipment

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S	9512	Repair of communication equipment
S	9521	Repair of consumer electronics
S	9522	Repair of household appliances and home and garden equipment
S	9523	Repair of footwear and leather goods
S	9524	Repair of furniture and home furnishings
S	9525	Repair of watches, clocks and jewellery
S	9529	Repair of other personal and household goods
S	9601	Washing and (dry-)cleaning of textile and fur products
S	9602	Hairdressing and other beauty treatment
S	9603	Funeral and related activities
S	9604	Physical well-being activities
S	9609	Other personal service activities n.e.c.
T	9700	Activities of households as employers of domestic personnel
T	9810	Undifferentiated goods-producing activities of private households for own use
T	9820	Undifferentiated service-producing activities of private households for own use