Estimating the Economic Value of PAF®

A report by the

based on work by ESL & Network, Europe Economics, and Data Advance.

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FOREWORD

In 2011 the Advisory Board commissioned a study of the economic value of the Postcode Address File *PAF*®[1] from the ESL Network. As far as we know, their work based on estimating the extent to which PAF® users could substitute other information for that within the PAF® dataset is the first time such an approach has been attempted. It revealed just how much individuals and businesses trust and have come to depend on address and postcode information in commerce.

These findings were then used as the basis for further consultation and validation with experts in the use of PAF®. The resulting analysis is contained in this report from the PAF® Advisory Board. The estimates are necessarily speculative but in broad measure, considering the business turnover of those organisations which act as value-added resellers of PAF® and the uses to which their clients and other end users make of information incorporating the data from PAF®, we estimate its value to the UK economy to be between £992m – £1.38bn per annum for which businesses currently invest £27m per annum. Roughly 40% of that value arises from postal and goods distribution services. That is not to say, however, that the value of PAF® as a commercial asset to Royal Mail is in the order of £1bn. Such a valuation would normally be calculated as a multiple of PAF® turnover in licence fees.

The estimates underline the importance of safeguarding the integrity and quality of the PAF® dataset and having clear incentives for the owner and manager of the dataset to invest in improvements to widen its use. They point to the importance of citizens' trust in the ownership and management of PAF®.

Ian Beesley
Chairman, PAF® Advisory Board

[1] **PAF® - See Glossary for definition**

EXECUTIVE SUMMARY

The role of the Postcode Address File (PAF®) is very considerable in the UK; providing data that underpins all types of public sector, financial, and commercial activity with citizens and customers.

The main uses of PAF® include:

- in postal services and goods distribution
- address data capture software
- database cleansing, and data quality management
- market research and statistical work
- geo-location products and services e.g. in-vehicle navigation
- identification and authentication tools
- direct marketing and location based marketing services
- public services planning and provision
- acting as a core reference tool, enabling data sharing and integration

The use and application of postal address datasets vary considerably across the world, and whilst the resulting economic value is not unique in the UK it is reflected by the differences in institutional, cultural, commercial and public sector developmental history and practice.

This study estimates that the direct economic value the UK obtains from PAF® as being between £992m – £1.38bn per annum. This has been calculated via a methodology that concentrates on a breakdown of its main uses, then arriving at an estimated range of value expressed in £m.

Royal Mail's PAF® has become the UK's standard address dataset by default and not by design. Due to specific UK conditions, PAF® has become an essential "building block" for public and private users' activity across all sectors:

- PAF® is a prerequisite for high quality postal services, itself driving commercial, administrative and financial transactions - now enabling vibrant e-commerce, direct marketing and goods distribution.
- PAF® fuels a vibrant software addressing application market, using address data to provide functionality for a countless number of different commercial, financial and social activities. Software suppliers have embedded and further augmented high quality addressing data into all types of business, public and voluntary sector activity in the UK.
- PAF® supports the majority of public sector databases and citizen activities, including crucial non-economic ones such as emergency services.

There is significant complexity attached to pinpointing the economic value of PAF®. Whilst the main categories of use and resulting value are clear cut, there are distinctions between direct and indirect benefit streams. For example, PAF® based address capture software affords call centre operatives direct benefit via removing manual data gathering and input. However, in another example, banks using postcode data as part of fraud deterrent activity before bank card distribution, is an indirect but still financially valuable application of PAF®.

That PAF® is used to obtain such benefits, contributes significantly to the assessment of its economic value even if the quantification of indirect streams would require significant detailed research, and a myriad of value judgements, speculations and assumptions beyond the scope of this report. In November 2011, Post and Parcel stated that *"even in one of the best address systems in the world, in the UK, research has suggested that a 1% improvement in the government's own address data would bring a EUR 25bn reduction in costs"* [2]. This report estimates only the direct benefit of PAF®.

There are also severe difficulties assessing in any meaningful way, that if PAF® did not exist whether alternative innovations could be employed to provide such comparable value. As PAF® presently supports the other material national address registers within the UK, a full alternative is not currently apparent. Whilst it could be possible to create a viable alternative to Royal Mail's PAF®; it is not clear that doing so would create significant additional economic value for the UK. Nor would the existence of a competing address dataset necessarily diminish the economic value the UK obtains from high quality address data (though duplication and adoption costs would require evaluation). At a national level it could simply split the role of providing the essential "building block' addressing data which enables highly valuable application and use. In summary, it is unlikely PAF® would be replaced by a single alternative and therefore some of the benefits of PAF®s independent adoption as a standard would be lost.

[2] **Reference:** Post and Parcel: Addressing the world: How geo-codes could help billions start using the mail. Author: James Cartledge

1. INTRODUCTION AND BACKGROUND TO PAF®

1.1 Introduction

The Postcode Address File (PAF®) can often be mistakenly thought of as a dataset of postcodes. Whilst postcodes are inextricably linked to PAF®, and play an essential role in their own right, arguably the intrinsic value in PAF® lies in it being a high quality, robustly validated, UK postal address dataset.

From acting as a business efficiency tool to supporting personal mobile "Where's my nearest?" search enquiries, PAF® based solutions are accessed *millions*[3] of times, every single day, by all types of organisations, to drive commerce and efficient citizen service delivery.

The objective of the study is to estimate the value of PAF® to the UK economy at current take-up levels and to consider the potential for further use.

1.2 The History of PAF® Development

Royal Mail has invested in postal address data in the UK and consequentially the development of the PAF® database. The timeline below summarises these developments.

Timeline for the development of PAF® in the UK:

Pre 1840 Mail was addressed using postal town and county name.

1857-1858 Sir Rowland Hill implemented a scheme to add London City compass point districts (example Central London EC and WC). Other major cities then followed London (Manchester and Glasgow and then Liverpool 1864).

1916–1917 Postal districts adopt alphanumeric format with numbered subdivisions (NW1, SW2, etc).

1959 Ernest Maples trialled first full 6-digit postcode in Norwich (NOR plus 3 characters). This was not fully successful.

1974 Norwich renumbered and postcodes were assigned to postal addresses. The PAF® database was developed and the postcode system rolled out across the country

1984 PAF® products developed and made available to external users for the first time.

1986 Royal Mail launches PAF® on CD.

[3] Source – Indicative figures provided by the Address Management Unit

1991 National Postcode centre established.

1992 PAF® on-line data maintenance established

1994 Walk log maintenance system introduced and used by postal workers to maintain PAF® data quality.

1994 PAF® Reseller Licence introduced.

1995-1996 Delivery Point [4] Suffix introduced for customer bar-coding and added to PAF® (as is Alias [5] data)

2005 Unique Delivery Point Reference Number (UDPRN[6]) added to PAF®, increasing interoperability with other datasets.

2007 PAF® is "ring-fenced". Formal Service level Agreements (SLAs) between AMU and Royal Mail operations are put in place for the maintenance of PAF®.

2010 New PAF® licensing arrangements introduced for the market place

2012 Expected licence development and consultation

1.3 The Postcode Address File (PAF®) today

What is PAF®?

PAF® is a UK-wide address dataset containing c.29m postal address records, grouped around 1.8m postcodes. Each record contains core data elements such as building number, street name, post town and postcode as well as up to 30 additional data elements (a full table of these can be found in Annex 1). PAF® also includes 1.4m business names and 200k vacant properties.

PAF® is continually maintained. On average c.3k updates are made to PAF® every day, identified by 62,000 postal workers across the UK, and validated by a central team of experts.

PAF® is recognised as being UK complete, standardised, and able to provide application developers and users with a stable, adaptable and interoperable dataset that can be used to underpin a wide-ranging, valuable set of mailing and non-mailing solutions.

Regulation and the management of PAF®

UK PAF® is regulated as a discrete postal service by Ofcom. Whilst specific arrangements are under review, in essence Royal Mail is currently required to:

- Maintain the dataset for the purpose of good addressing

[4] Delivery Point - *see Glossary for definition*
[5] *Alias – see Glossary for definition*
[6] UDPRN - *see Glossary for definition*

- Make the dataset available on reasonable terms
- Ensure that PAF® IPR is adequately protected
- Operate a “Ring-fenced” arrangement to ensure transparency of Royal Mail’s use of PAF®
- Work with a pre-determined profit cap

To facilitate this, the Royal Mail Address Management Unit is responsible for the management of PAF®. The Address Management Unit (AMU) is structured as a ring-fenced business unit with full Profit and Loss accountability, operating a licensing model that enables citizens to access PAF® for free, whilst organisations pay licence fees reflective of use.

Table 1.3.1 - Address Management Unit PAF® P&L

	2009 /10 £m	**2010/11 £m**	**2011/12 £m**
Revenue	24.9	25.7	27.1
Cost	22.3	22.7	24.5
Profit	2.6	3.0	2.6

1.4 The social value of PAF®

1.4.1 The cultural value

The postal address is generally thought of and used as the de facto address standard in the UK, whilst the postcode has arguably become ingrained in the national psyche. The ingenuity of the postcode comes from a combination of memorability and user-friendliness. The borough or major town with which the postcode is associated is often easily deciphered by the user through the two letter prefix. The mnemonic qualities of postcodes are further enhanced by the 4/3 or 3/3 composition of each postcode as opposed to one continuous number.

With 38 years of widespread use the general public are familiar and comfortable with postcodes and the address structure popularised via PAF®, such that if required to use a distinctly alternative system, intuition suggests that users may automatically find themselves referring back to the postcode system.

The postcode as a signifier of location

In addition to supporting mail delivery, the primary value of the postcode lies within its key role as a signifier of location. In operation for some decades, full postcodes are widely recognised and used by citizens as a rapid way of honing in on predefined geographical areas.

Pinpointing a set geographical area allows for significant levels of confidence in orientation and mapping. In addition to uses such as locating addresses and deciphering optimum routes to reach them, lists of addresses organised according to small, set geographical zones (postcodes) can also facilitate the collection of data by the public sector and commercial parties. This data can then go on to form marketing ventures, advertising campaigns and government policies.

Postcodes are the reference point for pinpointing locations in the UK on an everyday level and with advances in mobile technology the use of postcodes for a wide range of applications is increasingly crucial to citizens and organisations alike.

The postcode as a signifier of social status and social need

Additionally the value of postcodes in terms of social status and social need should not be underestimated especially within urban zones. Connotations, both positive and negative associated with postcode areas can be a source of practical significance and considerable pride for inhabitants or frequenters of particular postcode zones which are considered wealthy, trendy, unsafe etc. The desirability of postcodes plays a key role in the property sector and to large degree determines the prices of residential and commercial property. Another example of a generalised perception within the UK are postcodes as signifiers of desirability as a recent concept of “postcode lotteries”, where postcodes are synonymous with alternately low, high or mediocre standards in services including healthcare and schooling.

Public Sector organisations such as the NHS use profiling data based on postcodes to highlight disparities in health and well-being across a broad topic range – using analyses to prioritise service provision, allocate resources and to integrate care responses. Businesses such as insurers use postcode and addressing data in similar ways, for example as part of their assessment of the likely wealth and lifestyle of citizens, thereby improving their risk management.

1.5 The limitations of PAF®

PAF® has been developed for postal purposes and therefore is wholly concerned with mail delivery points. As such, some user requirements for address and location based information fall outside of the scope of PAF®, including:

- **The exclusion of non-postal addressable objects from PAF®.** These may include public spaces such as parks and woodlands, or objects such as monuments. This additional data is not of great importance to business service sectors, but it is essential for others, e.g. emergency services.

- **PAF® addresses are not geo-coded at source**. PAF® provides comprehensive access to 29m UK delivery points, but only the postcode element of each address record (of which there are c.1.8m) provides an indicator of location historically geo-coding has not been relevant to PAF®s core business.

- **PAF® does not include full Multiple Residence information** e.g. halls of residence, and sub-divisions within buildings. Royal Mail does provide this data but holds it as a

separate dataset because the data is not required for postal delivery purposes (though it can help identify addresses).

- **Postcode boundaries.** As postcodes were originally designed with the facilitation of postal services in mind, postal boundaries may be considered arbitrary or at least illogical to other address dataset users; local authorities for example or other public sector bodies looking to gather demographic data might find county or borough specific zones more pertinent.

Other context:

In the UK there is already significant dependency on PAF®, which, along with the regulatory profit cap, could be thought of as a limitation, for example in terms of Royal Mail's development of new licensing models.

The UK's reliance on PAF® can in part be attributed to a consequence of its attitude to data overall, its national culture, institutional history and citizens perspective of the implied role of government (for example the idea of a centralised ID register has historically been received with suspicion by the UK public). Unlike in the UK some other countries' non-postal address registers are maintained by placing obligations on Local Authorities/Municipalities and indeed citizens themselves – their attitudes to government, personal and addressing data vary considerably alongside attitudes to the scope on commercial and public sector exploitation of such assets.

In the UK core public sector national address registers have historically been developed and are maintained using PAF®. In 2011, GeoPlace, a joint venture between Ordnance Survey and Local Government Association was inaugurated to create and maintain a definitive national spatial address dataset for Great Britain; the PAF® forms a key component of this dataset.

2. METHODOLOGY FOR ESTIMATING ECONOMIC VALUE

This section sets out the methodology for estimating the current value of PAF® to the UK economy.

2.1 Methodology for assessing current value

Key elements for estimating the value of PAF® include:

1) Understanding the key uses to which the data is put and estimating the value that is obtained from those uses.

2) Categorising the losses and costs incurred if PAF® was not to exist:

- When organisations and others would still gather the required data by other means i.e. the difference in cost of using PAF® and gathering it elsewhere.
- When organisations and others would not use the data, the losses and gains from trade and commercial activities if PAF® did not exist.

3) Seeking to identify the true categories of cost described above through a questionnaire and interview programme with affected bodies. In particular the study has sought to establish;

- How much it presently costs to access PAF® and from whom they procure it.
- To what uses they put PAF® data.
- To what uses they may put PAF® data to in the future.
- How costly it would be to access alternative datasets in the absence of PAF®.
- Whether they would continue to provide these services in the future.

4) Calculating the costs of obtaining suitable alternative data from other datasets the report has used a questionnaire and interview programme to consider what such alternative datasets would be. This information has then been substantiated with other information on data costs available in the literature. This has allowed calculations of the total incremental increase in business costs across the various categories of business/public sector activity.

Approach taken to the questionnaire and interview programme

Having presented the methodology to the MRS Census and Geo-demographics Group for discussion and comment, a questionnaire was distributed to 20 organisations from a representative sample of interested parties. There was a good return rate of 75% from a diverse range of bodies, including, postal operators, the market research community, data management companies, postal engineers, major retailers and government bodies. Several responses were the result of the questionnaire being distributed to the respective membership of the organisations who then undertook to collate the responses. To gain more in-depth views, we followed up the questionnaire with personal interviews, 7 being face to face and 5 by phone.

2.2 Impact Assessment

This study has used specific Impact Assessment techniques to consider the economic value of PAF® based around the counterfactual of its absence from the UK in the pursuance of social, economic and public sector activity i.e. what would happen if such an address dataset did not exist.

In this regard the study makes a distinction between the absence of a high quality UK address dataset and PAF® itself. Whilst recognising the "on the ground" reality that PAF® is the dataset that currently provides certain strands of economic and social value right now, the underpinning notion of this study is not to say that this is the only dataset that could do so in the future.

2.3 Differentiating between the value of PAF® and that of the postcode subset

- The differing user requirements between those for postcode data vs. PAF® have been particularly well illustrated since 2010 when Royal Mail voluntarily released the postcode data free at the point of use as part of Open Data (available via www.data.gov.uk).
- Access to 'free' postcode data helps developers innovate and launch valuable applications, but has not removed the growing need for full delivery point level address data.
- For the purposes of this study the counterfactual is considered in the context of postcodes being inextricably linked to PAF®. However, where there are known instances of postcode level data being sufficient (for example in some types of Market Research) consideration has been given to the potential for alternatives to the existing postcode system.

3. UNDERSTANDING THE COUNTERFACTUAL TO PAF®

This section explains the findings related to the counterfactual to PAF® (which can be considered to be what would happen if PAF® did not exist).

3.1 The current users of PAF®

In identifying what would happen if PAF® did not exist there is a need to understand how demand for access to PAF® works, who it is used by (and the benefits it confers upon) in the public and private sector organisations and possible alternatives to PAF®.

Accessing PAF®

Predominantly users interact with PAF® via specific address based software applications. This circumstance facilitates the need for data supply arrangements and licensing framework that defines and determines the basis of use.

a) Data Supply arrangements

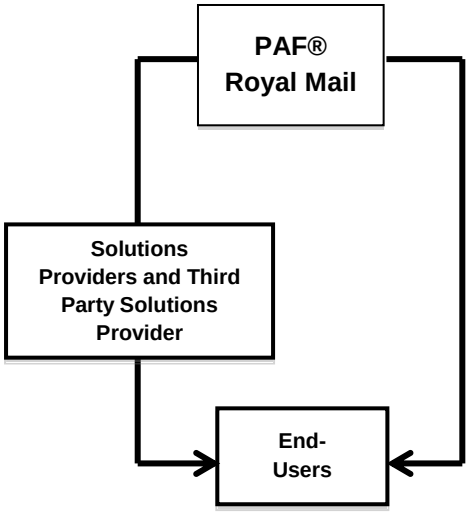
PAF® is distributed to entities via the terms of a generic Data Supply Agreement. Approximately 250 Solutions Providers and 1200 Direct End-Users regularly receive PAF® supplies. Updates to the dataset are available on a daily, monthly and quarterly basis.

Additionally a developer licence offers free access to sample PAF® data for innovation purposes.

b) Licensing framework

The Royal Mail Address Management Unit operates a primarily indirect licensing model. In more than 95% of cases PAF® is licensed to an End-User as part of a wider software solution or service.

Illustration 3.1.1**: **PAF® licensing framework.



Licensing Structure

PAF® is distributed via the terms of a generic Data Supply Agreement

Solutions Providers license End-Users (legal entities) to access PAF®-based solutions via generic terms

Direct End-Users (and Corporates) also license PAF® directly from Royal Mail via generic terms (generating < 5% royalties)

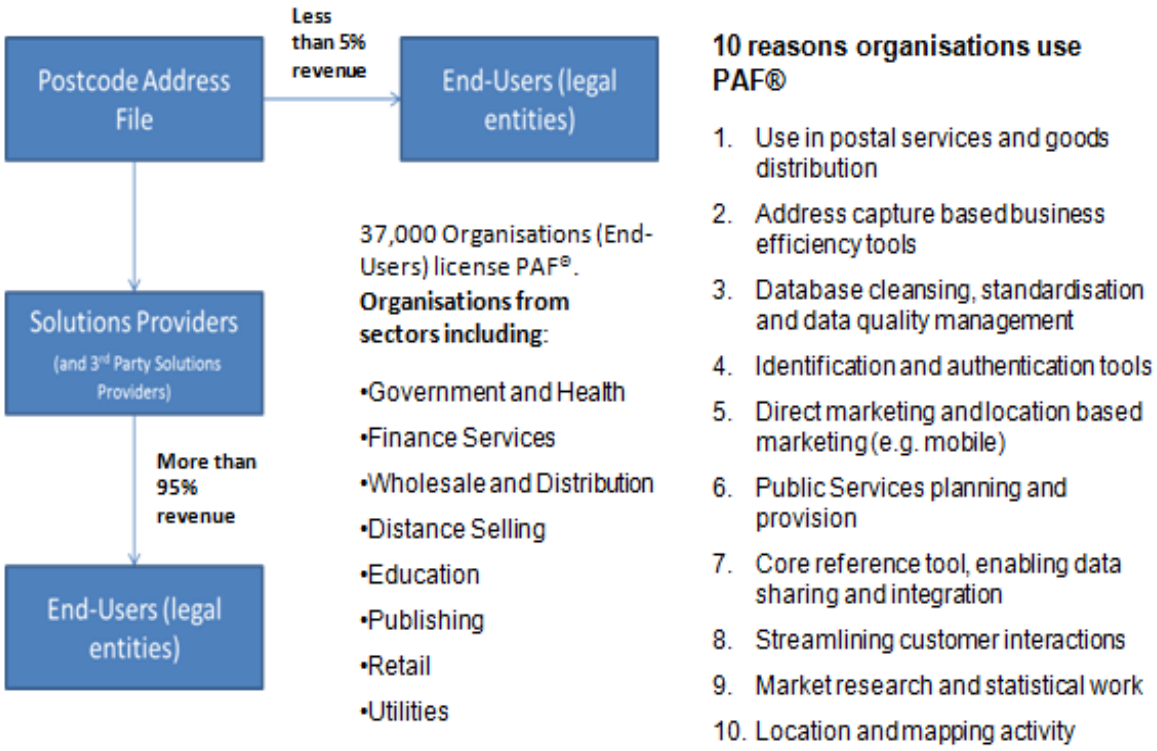
A PAF® Digital Mapping Agreement supports specific solution development.

Over the last 20 years this business model has supported exponential growth in the use of PAF®. However, with ever increasing demands for data access, advancing technologies and the need for simplification, there is perhaps now a need to consider the possibilities of alternative models.

Who currently uses and benefits from PAF®?

A highly innovative, and now mature, address management industry exists with more than 250 PAF® Solutions Providers and 150 licensed Bureaux. Many of these organisations were once start-up software suppliers, who, spurred by PAF®, have flourished into thriving businesses. The harnessing of PAF® to develop commercial, public sector and social tools and applications that are of intrinsic value to users is perhaps the key ingredient in understanding the benefits it provides.

Figure 3.1.2: Demand for PAF®



It is also important to note that the majority of Solutions Providers and End-Users require access to "Full" PAF® -i.e. premise level data rather than Part PAF® (or postcode level data)[7].

[7] PAF® Advisory Board - OPEN MEETING 2011/12 paper 17th January 2012

Solutions Providers and volatility of demand

Under this pattern of demand it could be argued that organisations that use PAF® to provide application and services for others are likely to have keen awareness of the relative advantages of doing so in comparison with other datasets, and of the development of substitutes for PAF®.

To date, the content, quality and provision arrangements of PAF® do not seem to have constrained innovation, commercial application or yet driven organisations to seek alternatives where the cost, quality or End-User cognisance of the data formula differ from the postal address standard.

However, the actual and diverse requirements of addressing data is changing and developing - it could be argued that such users may switch away from PAF® en masse if and when cheaper or more effective alternatives become available. This potentially high-cross elasticity of demand may therefore create some volatility in demand for PAF® in the future.

However, it may be that this diverse mix of PAF® uses and indeed types or organisations that provide PAF® services, mean that a one size fits all substitute is not likely to be viable (particularly if the alternative is not compatible with address standards used by mail operators or with the established norms and preferences of UK citizens).

3.2 Is there an existing alternative to PAF®?

In considering the candidates that may be considered as an 'alternative' to PAF® the following assumptions have been made:

Assumptions

- Some users require 'postcode' level data – i.e. data that reliably provides a useful location indicator.
- The majority of users require access to a dataset that enables the identification of UK premises as well as postcode (i.e. a viable alternative to Full PAF®[8]).
- The majority of users require the premise level dataset to be UK complete and robustly maintained to ensure accuracy.
- The dataset needs to be stable, guarantee supply and interoperable with other datasets.
- Where existing national address registers currently rely on PAF® they are classed as non-viable alternatives (as they are reliant on PAF® being available)
- The study considers full alternatives to PAF® rather than substitutes which might be viable for certain market segments.

[8] PAF® Advisory Board - OPEN MEETING 2011/12 paper 17th January 2012 page 16

3.2.1 The Candidates and Key Findings

This section considers the potential for existing datasets to be used as substitutes for PAF®.
Table 3.2.1

Candidate	Description	Viability
1. The National Address Gazetteer, including related data products: - AddressBase product suite - Ordnance Survey Address-Point and Address Layer 2 - National Land and Property Gazetteer (NLPG) - One Scotland Gazetteer	GeoPlace creates and maintains the National Address Gazetteer (NAG) Data for England and Wales, providing definitive sources of spatial address and street data for Great Britain. PAF® forms a key component of the National Address Gazetteer (and derived products).	The National Address Gazetteer and related products rely on PAF® and should not therefore be thought of as an alternative to PAF®.
2a) Local and Land Property Gazetteers (LLPGs)	Each Local Authority in England and Wales is responsible for maintaining address data to BS7666 standards. (Scottish authorities and Northern Ireland also maintain their gazetteers) Local Authorities have statutory responsibilities for street naming and numbering. New addresses are co-created with Royal Mail.	The BS7666 address standard includes the postcode. Historically some LLPGs have used PAF® derived data in their development. LLPG data is fed into the NLPG / NAG and at a national level is matched & updated using PAF® as part of the maintenance processes (see above). The LLPGs should not be thought of as an alternative to full UK PAF®. It is important to note that the Local Authorities manage the early part of the address lifecycle. As part of the street naming and numbering process each property is assigned a Unique Property Reference Number (UPRN), and geo-coordinate. The UPRN is successfully used as a unique ID number. Therefore, if PAF® had not existed, nor become the de facto monopoly of postal address information that it now is, it could be expected that Local Government would self sufficiently maintain address data.
2b) National Street Gazetteer	Definitive dataset of street names and location data for England and Wales.	This street data is maintained separately, and can only be used by authorised organisations (e.g. for street works etc). It cannot be thought of even as a part alternative.
3. BT OSIS	BT OSIS is the central database of residential and business telephone numbers. The dataset contains more than 27m records including names and addresses. The dataset can be licensed to 3rd parties but can only be used in Directory products and services. The dataset is updated on a daily basis.	The OSIS raw address data does not meet postal standards and the dataset is not permitted to be used for direct marketing purposes. It is interesting to note that in some developing countries, where a postcode system and address dataset is not held by the postal operator, (mobile) telephone directories are used to identify individuals and allow goods to be delivered to them as an alternative to PAF® If PAF® were not to exist there may be some benefit in considering the potential for OSIS, although in the UK it is unlikely to provide a viable alternative.

4. 192.com is an UK online directory, that contains more than 700m data records from a wide variety of sources[9].	192.com is a powerful people search tool, focused on services such as people finding and ID verification as well as providing business information and telephone directory services. 192.com uses the Edited Electoral Roll as well as OSIS as key data sources and is known to be the UK's most extensive dataset of names and addresses. Fair usage limits of up to 20 per day are put on data searches, the results of which cannot be made available for commercial reuse.	192.com is primarily concerned with identity verification and connecting people to places. Users can search using postcode information and full addresses may be displayed if available. (These may have been cleansed against PAF®). 192.com uses a wide range of data sources and techniques to maintain its dataset. Whilst 192.com offers users significant amounts of data that can be searched for free, currently 100 searches of the Edited Electoral Roll via 192.com cost £84.95 (compared to £8 for 100 internal PAF® transactions – raw data). This difference in price point reflects the difference in the nature of the data, business purpose and the additional value 192.com is adding to primarily personal data. This study does not consider 192.com to be a viable alternative to PAF®.
5. Edited Electoral Roll register. Currently the electoral roll (or electoral register) is compiled for each polling district by sending an annual canvass form to every house. The full register contains the elector's name and address information. Reforms are underway in England and Wales to migrate to an individual electoral register (moving away from household). Only an edited electoral roll register is available for 3rd parties to use, ensuring anyone can opt out from having their details shared.	Unlike other public sector datasets the Electoral Roll data is kept distinct from PAF®. The Edited Electoral roll data is incomplete but remains the largest UK people dataset. In 2012 26.5m records could be used as part of the edited version. Unlike PAF® commercial properties are not included. The proposed reforms to the electoral roll aim to ensure data is standardised and consistent with other datasets. It is intended that the National Address Gazetteer will assist in this task.	Whilst the Edited Electoral Roll data is the closest public sector asset to being an available alternative to PAF®, there is a significant amount of missing address data and a lack of standardisation which makes it less suitable for address management purposes. The move towards individual electoral registrations in 2014 is unlikely to make this data a viable alternative data source to PAF® in the future, as it will focus less around the household and more around the individual.
6. Other public sector datasets - for example Valuation Office and Council Tax records, DVLA user generated address data, or Land Registry data. Alternatively raw data that the public sector intends to release as part of Open Data may offer opportunity for the private sector to augment and amalgamate as alternative address register.	Datasets sourced from government departments and agencies such as Land Registry and the Valuation Office could be used to base such an address dataset, but this approach would require significant investment, and potentially changes in legislation. The data would need to be separately sourced from Scotland and Northern Ireland to ensure UK coverage.	The study considered a large number of public sector datasets as possible substitutes for PAF®. The 2 key findings were: 1) Almost all public sector refined data relies to some degree on the need for PAF®, even if only for the use of the postcode. Therefore they cannot be classed as viable alternatives in their current form. 2) Unrefined public sector data would need significant upfront and on-going investment to make the data anything near comparable to PAF®.

[9] Taken from 192.com

Candidates vs. PAF® - points of comparison

Table 3.2.2

	National Address Gazetteer (and related products)	**LLPGs**	**OSIS**	**192.com**	**Edited Electoral Roll**	**Other government datasets**
Is the candidate currently independent of PAF®?	No	No	Yes (Primarily a dataset of telephone numbers)	Yes (though relies on postcode and uses postal address standards)	Yes	In part
Does the candidate dataset offer UK Coverage?	Great Britain	Each Local Authority maintains their own Gazetteer	Yes	Yes	The data is incomplete. There are separate electoral commissions for each country	The data is country specific and in the unrefined cases, incomplete
Is the dataset comparable in accuracy to PAF®	Yes	Yes	Not for a postal address perspective	Yes	Not currently	No
Is the dataset regularly and robustly maintained on a daily or at least a monthly basis?	Yes (PAF® plays a role)	Yes	Yes. Daily basis	Various data sources are used, each of which is maintained differently	Yes, but not comparable to PAF®	In some cases
Is the dataset supplied to 3rd parties?	Yes	Via the National Address Gazetteer (NLPG)	Yes	The dataset is not licensed to 3rd parties. Searches can be performed	Yes	No
Is the dataset available for commercial reuse	Yes as part of Address-Base products	Yes as part of Address-Base products	Yes (as part of a directory)	No	Yes – the edited version	Not currently
Broadly, is the dataset more or less expensive to access than PAF®	More expensive (a central deal covers public sector use)	More expensive (a central deal covers public sector use)	Unknown	More expensive (not comparable)	Unknown (Non-comparable)	Unknown
Can the dataset be classed as a viable 'alternative' today?	**No (as PAF® dependent)**	**No, not as a postal address** dataset	**No as the** dataset **does not include postal addresses**	**No**	**Only in part (private sector organisation may be able to augment this data, but an alternative to postcode would be required**	**No**

In summary whilst there are a number of options to consider, evidence, supported by a wealth of the industry actually suggesting that a truly viable alternative option to PAF® does not currently exist.

Could an independent alternative to PAF® be developed?

If required, alternative address data could be collected, sourced and maintained from parties other than Royal Mail. However an alternative to the postcode system would need to be defined, developed and adopted to enable a true alternative to exist.

Existing reference systems such as the Unique Property Reference Numbers (UPRNs) or geo-coordinates could be used as an alternative to postcodes but are not currently known by more than the expert community. But even with existing options, significant investment would be needed to educate the nation to use an alternative to the postcode. Furthermore, it would require a full change to the whole infrastructure for postal operators and goods distributors, and migration for all commerce and public service provision to an alternative to PAF®. The return of investment that could be achieved from such an initiative is not in any way evident, particularly as postcode data is already made available free at the point of reuse and citizens are able to access PAF® for free (via royalmail.com).

However, the advances in technology and social media do make the option of crowd sourcing address data a much more viable option than ever before. In other countries obliging citizens to maintain government data, rather than always rely on postal workers is not uncommon. It is important for this study to therefore also consider the future needs for PAF® and provide some indication of what viable options may exist.

Table 3.3.1
This table further considers complete alternatives to PAF®.

Concept	**Viability?** **How could it work?**	**Feasibility**
1. **Build an alternative address and postcode** (or equivalent) dataset.	There are a number of options available. For example, by combining digital data from city maps with geospatial data from satellites each property could be identified and assigned an address and geo-coordinate. Effectively each property would have a unique reference number which with standardisation and further validation could be used as a base addressing and location indicator system	- The UK has for many years been consolidating the number of address registers available and specifically its approach to address standards and spatial addressing. - Enormous investment and education would be required to build a new address register. - The study therefore deems this option as unfeasible and out of scope due to required infrastructure, cost and unnecessary duplication.
2. **Exploit the existing address life cycle process** (but remove the role of PAF®. ***N.B*** *This option*	Local Authorities have statutory duty to provide property numbers and street names. As part of the address life cycle Local Authorities also assign Unique Property Reference Numbers (UPRN) and geo-coordinates to each property. Each Local Authority feeds into a national hub (GeoPlace). Currently data	- The BS7666 address standard includes postcode information. As this study has already highlighted whilst an alternative system to postcode could be implemented (or even existing referencing like UPRN or property/street geo-coordinates) it would take enormous effort to

does not fully take into account related IPR issues which would need full resolution.	is maintained using PAF®. If PAF® were not available then the data would need to maintained via new data supply arrangements.	implement such a system in the UK. - Postal operations, commercial entities and public sector organisations would need to change their systems and citizens would need to be re-educated. This could cost billions (based on up to 30% loss of efficiency for mail operations) and therefore is not thought of as feasible.
3. Maximising the potential of "Open Data"	As part of the Open Data agenda it may be possible to release public sector datasets that include non PAF® address information. Using this it may be possible to enable citizens and businesses to input, validate and update the dataset with their own address data. Robust address data standards would need to be defined and complied with. A central body would need to develop and maintain the dataset appropriately assigning postcode, or equivalent to postcode data, to each address data record. The resulting dataset would become available to developers and organisations via Open Government licence terms.	- Whilst in theory doable the raw publicly owned data is likely to be patchy and incomplete. - The very significant benefits to mail users and operators would be lost and could cost £billions. - Who would fund such a project in the UK is unclear. - Cost of change could be enormous and unlikely to worthwhile. With the reliance on the postcode in the UK it would be extremely costly to implement, and in particular to educate the nation to use an alternative system. - The high quality of PAF®, due to its continual maintenance by 62k postal workers would be expensive to maintain by alternative means.

3.3 Illustrations of how PAF® directly benefits users

Tables 3.3.2

1. Reducing costs and mis-deliveries for postal operators Goods Distributors and Mail Users

Description of how PAF® is currently used	Customer records and databases are corrected and standardised against PAF® to be 'postally' correct. Mailing lists can be built or enhanced using PAF® address validation. Targeted Direct Marketing campaigns can be developed.
Key Benefits	- Mail Operators can automate the sortation of PAF®-cleansed mail efficiently, and significantly reduce operational costs. - Goods distributors and other organisations benefit from reducing the significant cost of mis-deliveries. - Bulk mailers can benefit from discounted postal services, optimise mailing costs and significantly reduce the cost and negative impacts of mis-deliveries. Businesses can target their services at particular parts of the UK population - A growing Address Management Industry contributing c.£100m GDP can exist.
Impact of PAF® not being available / alternative	- Organisations might be obliged to compile their own databases and mailing lists. - Organisations may have to license an alternative address dataset, or collect data themselves.

approaches	- Mailing lists may not be accurate and lead to additional costs in production, increased postal costs, additional staff, data storage etc. - Significant increased costs (potentially £billions based on 30% loss of productivity) for postal service operators, not to mention the potential adverse economic impact due to loss and delays of business.
Does a viable alternative exist?	PAF® is the postal address standard in the UK. If an alternative postal address dataset had to be developed it would cause postal operators and goods distribution enormous additional cost.

2. Using PAF® address data capture software solutions as a business efficiency tool

Description of how PAF® is currently used	Employees can efficiently capture and verify customer address details at the point of entry using PAF® based software.
Key Benefits	- Over and above bulk mail discounts, these solutions save organisations significant time and money and help streamline customer interaction and improve customer experience. - Supports effective customer database management. - Supports the growth of an 'address management industry'.
Impact of PAF® not being available / alternative approaches	- An alternative data source would be needed to power address data capture software. This could significantly increase costs and/or impact the effectiveness of these solutions. - Alternatively, manual address capture could cause significant data quality issues, and decrease productivity
Does a viable alternative exist?	An alternative dataset i.e. another customer database or non-postal address register could be used to power the software but the benefits are likely to be impacted. Otherwise manual address capture would be required. It is estimated manual address capture can take 45 seconds longer than using PAF® address data capture software.

3. Using PAF® address capture software for e-commerce

Description of how PAF® is currently used	Customers can efficiently input and validate their address details when ordering goods and services online.
Key benefits	- Accurate capture of postal address detail speeds up and simplifies the checkout process and reduces chance of shopping cart abandonments and mis-deliveries. - Improves customer experience.
Impact of PAF® not being available	- Manual address capture or structuring the address fields around an alternative address standard would increase mis-deliveries, and cause additional processing time and costs for organisations. - Increased time at the checkout is proven to impact the number of shopping cart abandonments and therefore cause loss of revenues. - Data quality and customer experience would be impacted.
Does a viable alternative exist?	Browser auto-fill could to some degree provide a viable alternative, although this would be dependent on user preferences rather than postal address standards.

4. PAF® supporting market research and statistical work

Description of how PAF® **is currently used**	PAF® contains essential information for companies undertaking market research and marketing activities. PAF® allows these companies to undertake maximally representative statistical work and sampling, which helps ensure more accurate results and resulting initiatives.
Key benefits	- PAF® allows for address validation, enhances the representativeness of research and the resulting effectiveness of marketing campaigns. - Supports spend on Direct Marketing and other marketing activity.
Impact of PAF® **not being available**	- Organisations may face incompatibility problems, for example with previous datasets, and might be obliged to compile their own dataset and mailing lists. This would involve costs relating to research staff wages and expenses, staffing costs for inputting data, costs associated with the continual updating of the dataset and costs relating to the potential storage of outdated information, - More time spent by staff on dataset compilation or address gathering would mean less time spent on actual research or marketing. This could result in key moments in the market being missed and business opportunities lost. - There would also be a higher risk of errors in address information and an increased likelihood of sending marketing mail to incorrect addresses. Additionally there is potential for inefficient market reach and loss of new business through inaccurate targeting, mail being sent to the wrong address and nuisance mail - Inaccurate address details due to keying or spelling errors may also lead to an impaired business reputation. - Could result in misplaced conclusions and recommendations – which have wider implications in terms of the misplaced advice market researchers may subsequently give, based on their research – ultimately jeopardizing the potential to win future business.
Does a viable alternative exist?	There isn't currently an obvious alternative to PAF® for this kind of usage.

5. Route Optimisation and Location Based Services (including in-car navigation and digital mapping)

Description of how PAF® **is currently used**	Users enter postcodes (and/or full address details) relating to journey start and end destinations. Directions are provided using route optimisation software. Similarly "Where's My Nearest?" searches are relied on by mobile users.
Key benefits	- Route optimisation software can cut transport costs by 20-40%. - Users can successfully and efficiently navigate their way from A to B.
Impact of PAF® not being available	- Without a postcode system users would need to manually enter other types of address and location information causing additional time and cost. - Digital mapping providers would need to source alternative data that could be both costly and complex to incorporate into their base maps (particularly as postcodes are currently free at point of use). - Routes would be calculated using alternative reference points. This could result in the loss of user-friendliness, additional time and fuel costs.
Does a viable alternative exist?	Yes. In other countries where the postal address and postcode is not so relied on it is normal practice to use alternatives to postal address and postcode information.

6. Supporting database quality management and data sharing

Description of how PAF® is currently used	Cleansing customer databases against PAF® helps keep contact data up-to date and accurate. Using PAF® can play a key role in linking databases together, enabling attribution and integration of additional data.
Key benefits	- Supports the ability to plan and make meaningful decisions based on reliable, accurate data. - Increases efficiency and reduces duplication of effort, and need for data matching. - Enables data sharing. - Increases collaborative working and can help towards a "single citizen view" enabling improved customer experience.
Impact of PAF® not being available	Databases would be cleansed and updated using alternative reference sources.
Does a viable alternative exist?	Unique Property Reference Numbers (UPRN) and TOIDs (from Ordnance Surveys) could provide viable options, though would be significantly more costly for the private sector based on current licensing arrangements and pricing models.

4. QUANTIFICATION OF THE COUNTERFACTUAL

4.1 The methodology revisited

As set out earlier this study considers the additional costs of a counterfactual to the PAF® for existing users.

These costs may include additional items associated with PAF® alternatives, or foregone revenues where it is no longer possible to provide services, as if PAF® did not exist.

The methodology takes the following steps:

a) Considering the current cost of PAF® to users.
b) Calculating the costs of revenues foregone if the PAF® did not exist.
c) Calculating the discrete additional cost imposed on postal providers and users of postal providers if PAF® did not exist and the additional costs which users of PAF® would incur if PAF® did not exist and where they could continue to provide services.

4.2 The current cost of PAF® to users

Total PAF® royalties generate revenue of approximately £27m per year for the Royal Mail Address Management Unit. The revenue breakdown on a sector basis are as follows:

AMU revenues breakdown[10]

Table 4.2.1

% of revenue	2008-09	2009-10	2010-11	Examples of how PAF® might be used
Distance selling	11.9%	12.4%	10.8%	• Address validation (E-commerce) • Database cleansing
Education	4.7%	4.5%	3.2%	• Academic research and innovation • University and school admissions • Route optimisation • Database cleansing
Financial Services	19.7%	19.7%	17.3%	• Front line address capture • Direct Marketing • Insurance premium calculations • Database management • Identification
Government & Health	17.3%	17.0%	19.0%	• Address register development • Database referencing / data sharing • Mapping • E-gov services and frontline address capture • Policy and planning • Research and statistics
Manufacturing	5.4%	5.9%	4.6%	• Database management and cleansing • Frontline address capture
Media & co-Suppliers	3.3%	3.1%	3.2%	• Direct marketing • Market research and geo-demographics • Database management and cleansing • Location based services e.g. mobile marketing
Other Business	15.2%	15.4%	10.8%	Unknown
Publishing	3.4%	3.6%	12.4%	• Direct marketing • Market research and geo-demographics • Database management and cleansing
Residential	0.0%	0.1%	0.0%	N/A
Retail	11.1%	10.8%	10.7%	• Frontline address capture • E-commerce address validation • Database management – e.g. loyalty databases • Data quality initiatives
Utilities	4.1%	3.5%	4.4%	• Planning purposes • Frontline address capture • Mailing and marketing activity • Database management
Wholesale & Distribution *	3.9%	3.9%	3.6%	• Mail operations • Frontline address capture • Data quality and database management • Planning and logistic optimisation • Ease of postal communication and distribution services

*Mail operators are included in this segment

[10] Source Address Management Unit

4.3 Quantification challenges

In the table 4.2.1 above we show the structure of demand for PAF® illustrating royalties by market sector. More than 95% of this demand is serviced by Solutions Providers and as these organisations have a greater potential cross elasticity of demand for PAF® than other users the relationship between the usage of particular users and the ability of Solutions Providers to select different data sources is therefore important to this study.

This raises a number of issues in relation to estimating cost savings including the following:

- to what extent may the different types of use require Solutions Providers to use different datasets (potentially constraining Solutions Provider's ability to switch to other data sources?)
- to what extent would there be issues of double counting the benefits of PAF® if benefits to Solutions providers were estimated alongside benefits to users channelling their use of PAF® through these services.

To solve these issues we consider that the most efficient method is to start from evaluating the usage of PAF® outwards and then review the potential impact that Solutions Providers may have on the counterfactual to this usage. In this respect it is also possible for Solutions Providers to find it would only be economic to switch away from PAF® when they were unable to use an alternative address dataset for a high % of users due to economies of scale in using any address dataset. This could offset the potential for a switch away from PAF®.

The robustness of the survey findings

To estimate the economic value of PAF® we have surveyed (through questionnaires and surveys) a high proportion (in terms of PAF® revenues) of Solutions Providers and leading End-Users.

In this respect whilst our survey was highly targeted we feel that our results are robust in reflecting the views of major PAF® players. However, we are aware it is difficult to imagine fully what would happen if PAF® did not exist in particular for factors such as foregone revenues under the counterfactual.

To reflect this we have presented our results as a range between the additional costs not including foregone revenues and those including them.

4.4 Calculating the economic value of PAF®

Step one: Calculating the costs of revenues foregone if PAF® did not exist

Our findings suggest that these lay, in particular, within the areas of address management resellers, market research, marketing as well as online e-commerce.

Table 4.4.1

User of the PAF®	Usage	Service revenues dependent on use of PAF®	Possible alternatives	Basis of Calculation	Revenues foregone
1 a) Market research and statistics	Full PAF®	c. £2bn	Not determined	It is estimated that around 35% of total market research revenues are dependent on PAF®. A proportion of research could be undertaken using an alternative system e.g. alternative boundary system (to postcodes)	Loss of revenue c. £200-400m (conservative estimate of 10-20%)
b) Market research for marketing purposes	Postcode only		Alternative postcode /geographical zone system		
2. Distance selling (online e-commerce)	PAF® address data capture solutions used for e-commerce purposes	c. £81bn of online sales in the UK. A recent study by the international Fraud Prevention Research Centre revealed that 44% of UK shoppers abandon at least one shopping transaction due to length it takes to complete.[11]	Browser auto-fill may work as an alternative to PAF® address data capture software for this use case. (Browser auto-fill is based on user generated data)	Based on 180m PAF® External Transactions[12] we conservatively estimate that 40% of these relate to online purchases (72m transactions p.a.). Of these we conservatively estimate 10-20% (7.2m-14.4m transactions may result in lost revenue because of the increase in time taken at the check out process). For the purposes of this calculation we assume a conservative average online transactional spend of £15 [13]	£108m – £216m loss of revenue
3. Address Management - PAF® Solution Providers and Bureaux	Develop and sell PAF® based solutions	£100m-£120m	Solutions Providers could license alternative address dataset if they become available or utilise customer databases to power their proprietary address management software	It is estimated that at least 50% of address management software suppliers' products and services are dependent on PAF® and would not easily be able to switch to alternative address datasets as they support mailing purposes	£50m-£80m loss of GDP
Totals					**£358m-£696m**

[11] A study conducted by Experian by the international fraud prevention research centre.
[12] PAF® Advisory Board - OPEN MEETING 2011/12 paper 17th January 2012 page 18
[13] European Travel Commission – New Media Trend Watch "e-commerce"

Step Two: Additional costs to postal providers and users

Table 4.4.2

User of the PAF®	Service revenues dependent on use of PAF®	Additional associated costs.	Financial effect
Postal Providers and Goods Distributors	Total revenues in the market £11.4bn[14] (Automation of mail sorting saves up to 30% of sorting costs [15])	Additional sortation costs that would be incurred[16] Additional costs incurred owing to mis-delivery	Total saving due to automated sorting for Royal Mail estimated at £288m[17] Costs of mis-delivery due to missing address and postcode information £146m[18]
E-retailing	Total revenues of £81bn[19] Costs of mis-delivery to e-retailers estimated at £1bn per year[20]	Cost of mis-delivery for e-retailers due to poor addressing	£100m[21]
PAF® as a business efficiency tool	Not quantified	Additional labour required to capture and standardise customer address data Based on conservative estimate of PAF® internal transactions used for this purpose.	Cost of additional labour required by organisations to complete manual address capture £100m-£150m
Total			**£634m-£684m**

Economic value of PAF®

Table 4.4.3

Category	Estimated Total Value £m
Estimated revenues foregone	£358m-£696m
Estimated additional cost imposed on postal providers and other users	£634m-£684m
Range Total	**£992m – £1380m**

[14] Source revised Hooper report
[15] Figure based on consideration of discount to bulk mailers offered by Royal Mail and review of industry comparators

[17] Sorting costs (including delivery sequencing assume to be 15% of total costs only savings at Royal Mail letters business are considered here) those total costs estimated at around £6.4bn
[18] Source Postcode Anywhere and IMRG report
[19] Source IMRG website for 2010/2011
[20] IMRG
[21] This is calculated as one tenth of total missed deliveries by far the bulk of which will be due to nobody being at home when items are delivered.

5. CONCLUSIONS

Introduction

The specific postal address and postcode information created and maintained in PAF® has become universally known and understood in the UK and has therefore created a platform for interaction and communication between citizens, public and private bodies.

PAF® is deeply embedded within the fabric of the UK's public services, private sector business and local communities. Its significant and growing use in commerce, the public sector and citizen services has resulted in the delivery of highly significant economic and social value. In the UK, the use and application of PAF® has been significantly facilitated and driven by innovative software companies developing and providing applications that help organisations and individuals exploit these circumstances.

This report has identified and assessed some of the key strands of PAF® use and has quantified their impact. As a consequence our analysis has conservatively estimated the economic value of PAF® to be in the region of £992m – £1.38bn.

In addition to these direct impacts, this report identifies and seeks to underline a very significant level of indirect financial and non-financial value being obtained from the PAF® dataset, although this indirect value has not been quantified.

Implications of the findings

This report has sought to demarcate between the financial value obtained from the UK having and using a high quality address dataset and the reality that PAF® is owned by Royal Mail.

Introducing alternatives may reduce PAF®'s role but will probably not increase the overall value which is currently derived from using such a high quality address dataset in the UK. To some degree alternative addressing datasets exist in the UK. Current national address dataset initiatives, such as the National Address Gazetteer are seeking to become the "definitive spatial address dataset" for Great Britain. Such initiatives aim specifically to expand the value obtained from addressing data and to do so they use PAF® as an essential component. This points strongly towards the imperative not to replace PAF® but to galvanise its use in conjunction with other data.

It is the interplay of these datasets that will arguably lead to optimal addressing solutions, rather than one suppressing or replacing the other. This has been the trend for many years in the UK where the creation of LLPGs (amalgamated into NLPG), the OS addressing product suite and essential government activity such as the Census have been based on the various product partnerships including PAF®.

In order that dataset might be considered viable alternatives to the PAF®, they must be able to function independently of the PAF®. However, the inclusion of PAF® data within more advanced products is advantageous for dataset providers not only as a result of its accuracy

and reliability, but also because of the trust the wider public has in the postcode system. As such, it could be argued that future addressing solutions may not act as alternatives to PAF® but will themselves become users of PAF®.

A key conclusion of this report must therefore be that the use of PAF® produces very significant financial value for the UK economy. There are strong forces underpinning this conclusion:

- Postal providers and goods distributors will have an on-going reliance on PAF® to optimise services.
- There remains significant reliance across the spectrum of uses of the inherent connotations of addresses and postcodes as they are currently constructed.
- The attitude of the wider public, long used to postcodes as a universally understood and internalised piece of data, with any alternative being very hard to implement.

The future of PAF®

Current PAF® arrangements are the result of historical circumstances and very significant practice in the use and embedding of it as the UK's available high quality address dataset. It was not logically designed to meet a set of pre-determined needs and requirements. It began as a means to aid postal services; it is now used to service a huge diversity of requirements across sectors, markets and applications. PAF® is compatible and adaptable to other future applications and it is likely to continue to act as a cornerstone for future innovations.

The majority of the demand for the PAF® is channelled through Solutions Providers. This could imply that there is scope for a significant shift in demand for PAF® if an alternative non-postal address dataset, with data element signifying location were to emerge. However, unlike in some other countries this study suggests that in practice an alternative viable UK address dataset, without reliance on PAF®, does not yet exist and currently new developments involve participation of the PAF® as an essential component of new data sources.

The diversity of the application of PAF®, both current and projected is so significant that it can only strain the capability of the dataset and any alternative similarly constructed. The future may therefore see alternatives that aim to meet specific parts of the diverse requirements more precisely and more logically than PAF® does or can.

The wide ranging use of PAF® in the UK is historically unique and is gathering pace - For example in the personal mobile location services sector. The ability for Royal Mail to provide a high quality postal address dataset to meet such varied needs is also a bi-product of circumstance and history. Therefore, in response to a purely theoretical position that PAF® no longer exists, building a replica dataset would certainly not be a rational exercise. The creation of a suite of datasets to precisely match specific needs and categories of use would best serve users and maximise the economic value derived from the data.In order to ensure that PAF® maintains its position as a fundamental building block in the development of UK

addresses, consideration might now be given to how the use of PAF® can be further extended.

GLOSSARY

Alias	the database known as the 'Alias File', which contains 'Locality', 'Thoroughfare', 'Alias - Delivery Point' and 'County Alias' details
Bureau	An organisation who uses a licensed copy of the PAF® Data to clean data from another organisation before passing the cleansed address data back to them
Delivery Point	A complete postal address (business or residential), including a Postcode, to which mail is delivered
End-User	A single legal entity, which uses addressing Solutions for its own use
PAF®	The dataset, or any part of it, known as the 'Postcode Address File' containing all known delivery address and Postcode information in the United Kingdom
Solutions Provider	A Solutions Provider is an organisation licensed by Royal Mail to use its Postcode Address File - PAF® - to create, modify and enhance their products and solutions. Solutions Providers sell their PAF® powered solutions onto Third Party Solutions Providers and to End-User customers and return a Licence Fee to Royal Mail for using PAF® data
Third Party Solutions Provider	A licensee that wishes to obtain Solutions from Solutions Providers to enhance their own Solutions for resale onto End-Users
UDPRN	PAF® Unique Delivery Point Reference Number
UPRN	Unique Property Reference Numbers (assigned by Local Authority street naming and numbering function at the early stage in the address life cycle process – does not form part of PAF®)

ANNEXES

Annex 1: What is PAF®?

The table below indicates which PAF® record elements comprise Full and Part PAF®

PAF® record element	**A whole PAF® record for full PAF® comprises the following elements**	**A whole PAF® record for part PAF® comprises the following elements**
Organisation Name	✓	
Department Name	✓	
PO Box	✓	✓
Sub Building Name	✓	
Building Name	✓	
Building Number	✓	
Thoroughfare	✓	✓
Dependant Thoroughfare	✓	✓
Dependant Locality	✓	✓
Double Dependant Locality	✓	✓
Post Town	✓	✓
Postcode	✓	✓
Delivery Point Suffix	✓	
Checksum Digit	✓	
UDPRN	✓	
Postcode Type (small or large user)	✓	✓
Small User Org Indicator	✓	
Delivery Point Count for Postcode	✓	✓
Mailsort code	✓	✓
Concatenation Indicator	✓	
Address Keys	✓	
Organisation Key	✓	
Number of Households	✓	
DP Use Indicators	✓	
Alias – Delivery Point	✓	
Alias – Thoroughfare/Dependent Thoroughfare	✓	✓
Alias - Locality	✓	✓
Alias – Traditional County	✓	✓
Alias – Former Postal County	✓	✓
Alias – Administrative County	✓	✓
For Welsh PAF® Records only:		
Welsh - Dependent Thoroughfare	✓	✓
Welsh - Dependent Locality	✓	✓
Welsh – Double Dependent Locality	✓	✓
Welsh – Post Town	✓	✓

Annex 2: CASE STUDY: The history of postcodes in the Irish Republic

The history of the development towards a postcode is as follows:

- 1917: Postal districts introduced in Dublin city and suburbs by the British government with the prefix "D", and retained after independence without the prefix.
- 1961: Public begin to use district numbers; street signs displayed postal district numbers rather than just displaying the street name in Irish and English.
- 1990s: Automated sorting machines for mail were introduced by An Post. By then, the optical character recognition (OCR) systems were advanced enough to read whole addresses as opposed to just postcodes, thereby allowing An Post to skip a generation. Consequently, mail to addresses in the rest of the Republic does not require any digits after the address.
- May 2005: When Minister for Communications, Noel Dempsey, announced that postcodes would be introduced in Ireland by 1 January 2008, the National Statistics Board supported a point-based postcode system that used grid reference/GPS technology to provide a relatively clear-cut, low cost approach to allocating a postcode to an address. This avoids trying to group households together into small area clusters.
- Announced that postcodes would include the one- or two-character county codes currently used in vehicle registration plates, making them alphanumeric, with the existing Dublin system retained.
- February 2008: Eamon Ryan proposals included a 6 character format postcode: "D04 123" where "D04" corresponds to the current Dublin 4 postal region and "123" is a specific group of buildings, similar to British and Dutch postcodes, which cover groups of buildings, rather than simply suburbs or towns.
- April 2010: The Oireachtas Committee on Communications, Energy and Natural Resources published a report recommending instead that any postcode implemented must be capable of supporting "developing technologies such as internet mapping, Google maps and iphones", applying a unique identifier to each property. It suggests that the previously mentioned D04 123 model will not satisfy this requirement and may, in fact, make matters worse.
- 15 April 2010: Cancellation of tendering process to select a consultant to advise the Minister on the implementation of a postcode.

Estimation of the economic impact of postcodes in the Irish Republic

A report by PA Consulting, which evaluated the monetary benefits of national postcodes at the request of the minister, estimated that it would save public bodies, including the emergency services, €22 million and would create efficiencies in all areas of social and economic planning.

- Cost savings were identified in a number of government departments, including Revenue and the Department of the Environment, along with Health, and Social and Family Affairs.
- A postcode system would facilitate cross-departmental sharing of public data and information dramatically cutting waste and duplication.
- The country's rapid heterogeneous population growth also increases the need for an efficient dataset based on postcodes reducing inefficient service delivery and infrastructural planning.
- In addition, postcodes are seen as vital to efficient spatial planning and aiding health research, education, housing social care and employment integration.

The business sector has said that a postcode system would lead to increased efficiencies, while the insurance sector has estimated that it would result in annual savings of around €40 million by improving their risk management assessments.

In the voluntary sector, the charity BreastCheck said it relied on accurate postal services for efficiencies in its own service.

The Irish Exporters Association previously estimated that the lack of postcodes added up to 30 per cent to Ań Post's sorting and routing costs.

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