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Market Review

Physical Infrastructure Access (PIA)

Annex 8: Realworld Systems PAR Analysis Non-Confidential

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Realworld's Response to Eircom's Response to the PAR Requirements

Final Report

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Change History

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1.0	20/06/2023	Gillian Kendrick	Preliminary report
1.1	28/09/2023	Gillian Kendrick	Final Report

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Contents

1 Introduction

Eircom have replied to ComReg's 'Physical Infrastructure Access (PIA) Market Review', consultation, and Draft Decision with a number of points.

This document contains Realworld's response to points 192 to 207. It also contains in section 3, indicative costing for the implementation of a Smallworld based solution to link imagery and photos with network inventory assets.

2 Realworld Response

2.1 F ComReg's proposed Passive Access Records Obligation is too expansive

The proposed solution is similar to that provided by a number of other Telecom operators based on a Smallworld platform. These other solutions are used to provide inventory data to other operators and also design houses to enable network planning and build. The technology required to provide this has been implemented on both Smallworld version 4 and 5 [✂ ✂]. The solution is not complex. It was implemented and delivered in less than three months with a small implementation team. The training required for users to operate the functionality was carried out in under half a day.

Eircom already provide access to their Smallworld solution to third parties who they subcontract parts of their plan design and build to[2].

2.2 192 – Description of current access

This point refers to the current access provided with Eircom to their PAR data.

One type of current access is based on the GE web product – eMaps. Users are able to create geo-located pdf prints of the Eircom network using this product. It is a view only platform. It provides access to planned and built network. These are colour coded. As new infrastructure goes live, this is made available through the eMaps platform.

Note: The pdfs are not vector based and so can only be used a picture backdrop for planning.

Eircom also provides quarterly extracts of its network in Shapefile format. Note: the Shapefile format is not an industry standard. It is a proprietorial format which is developed and maintained be ESRI.

'A shapefile is an Esri vector data storage format for storing the location, shape, and attributes of geographic features. It is stored as a set of related files and contains one feature class.'

[1] This information was shared by Eircom with ComReg in response to a series of questions asked in relation to the PAR report. The title of this was 'Information Requirement pursuant to section 13D (1) of the Communications Regulations Act 2002, as amended Information Request in respect of OSS and PAR - Eircom response to ComReg questions of 18th August 2022'

[2] This information was shared by Eircom with ComReg in response to a series of questions and the internal work flow processing new orders asked in relation to the PAR report.

Eircom remark that its inventory record is known to be incomplete and unreliable. All potential users of the network will be required to survey the network as part of the planning process to verify the data.

It should be noted that this is the data which Eircom and its subcontractors use to create initial new network plans and reports.

2.3 193 – Rebuttal of new PAR access requirements

i) Eircom requires ComReg to recognise that Eircom cannot give access to third party licenses software

Eircom already does provide such access:

- Operators can currently register to use eMaps which is third party licensed software.
- [✂ [redacted] ✂] are able to remotely log in to the Eircom GE Smallworld third party system on the Eircom network using VDI technology

ii) Eircom is only required to provide extract information in a single format

The proposal is for a single format which is GeoJSON which is an industry standard.

iii) Eircom state 'A number of the proposed information requirements are excessive and unnecessary'

The requirements are very straightforward. Provide a dump of data in an industry standard format for a user defined area. This is a feature which has been implemented by many operators to provide access to their inventory data to third parties.

Eircom state that some of the access requirements are excessive. The requirements only enable access seekers up to date access to the PAR information which are available to Eircom and subcontractors.

iv) ComReg's consultants have made a number of incorrect assumptions regarding Smallworld and therefore a longer lead time is required, if further system development can be lawfully mandated

Eircom have provided the information which the proposal was based on. Eircom run a Smallworld [✂ [redacted] ✂]based PNI solution which can be accessed remotely through VDI technology.

Eircom have proposed that in order to implement the solution, they would have to upgrade their current PNI Smallworld solution to version [✂ [redacted] ✂]. This is not correct. Data extract GUIs have been developed recently for an operator using the same Smallworld technology stack. The time taken to implement this solution was significantly shorter than the time proposed in the consultation. A solution was recently developed and deployed on the version [✂ [redacted] ✂] of Smallworld (the same version used by Eircom) for [✂ [redacted] ✂]. The development and deployment took less than 2 months. A similar solution was also implemented for the UK based operator [✂ [redacted] ✂]. This also took less than three months to be specified, developed, tested, and rolled out into production.

The final statement is that ComReg must specifically recognise that Eircom cannot give access to third party licensed software – Eircom already do – eMaps for external users and Smallworld PNI access to [[redacted]].

2.4 194 – Definition of the requirement

A statement of required access to information.

2.5 195 – Eircom exclusions to the requirement

This confirms which data would be excluded from the information which is covered:

- Geodirectory data
    - This is reasonable
- Location of ESB or Irish Water or Gas Networks
    - This is reasonable

Eircom state that these exclusions are not mentioned in the consultation. It should be noted that they are not requested.

Eircom also re-state that they only have the obligation to provide data in a single format. They do currently provide it in two different formats – SHAPE and PDF.

2.6 196 – Statement from consultation that eMaps does not provide sufficient PAR Access

Eircom are simply quoting from the consultation that access to a PNG/JPEG from eMaps is not effective PAR access.

2.7 197- Expansive and Intrusive request for data

Eircom claim it is unreasonable to have to provide bespoke formats for access seekers. This was not the requirement. Eircom were asked to create data in the industry standard GeoJSON format.

This is not a difficult piece of functionality to implement. As mentioned before, it is used by a wide number of other operators who work with Smallworld technology. The timescales required to implement a similar solution are described in section 2.3.

2.8 198- 'Misunderstanding' of the request for multiple data formats.

Misunderstanding of the requirement. The only request is to provide a GUI which other operators can access from which they can create data extracts in one format of data.

There is no request for bespoke formats of data for export.

2.9 199 – 'Misunderstanding' of the power of PDF data for Network Planning

Eircom state that much information can be extracted from geo located PDF diagrams using PDF measurement tools.

PDFs do not contain the same level of detailed information as Eircom uses when accessing its systems. This therefore is not a suitable format for PAR data. It does not include inventory and attribute information. It is just a picture which has an associated coordinate to show which part of Ireland it is located in. The suggestion that an operator can incorporate this dumb raster picture in their system and then manually attempt to measure lengths is a completely inappropriate suggestion and in no way practical.

It is analogous to providing a photograph of a legal contract to a lawyer for update. Before the data can be used, a person would have to re-type all of the information into an editing tool, placing a barrier to productivity.

The situation is worse for PAR data as not all of the important information, e.g. the location of joints, will be visible on the PDF.

Eircom also mention the quarterly Shapefile export. The Shapefiles which are exported do not contain all of the requested information and are also only available once a quarter. The operator is not able to qualify which data they wish to receive. The data is not up to date.

2.10 200 – statement on the PAR information to be provided

Statement about the data which is to be made available, noting that the data may not all be accurate.

2.11 201 – Eircom not wishing to provide conduit connectivity data, claiming it is not useful

Eircom mention that their inventory solution does not contain good/any information on conduit connectivity. They propose that it would be better to exclude this data.

If this data is documented in the Eircom Smallworld systems, to provide equal access, it should be provided through PAR.

It is understood that the conduit capacity and connectivity information held in Smallworld will contain inaccuracies. However based on best industry practice, it is clear that this data can be used to create designs before survey. Equivalent processes are in place for the Alt Nets who use Openreach PIA data in the United Kingdom. A common process is to create a high level design of the new network based on the conduit data supplied. This is used to create a survey pack which identifies the 3rd party data which it is proposed will be used. If the conduits are found to be blocked, missing or some other issue, the surveyor will then add nearby conduits to the survey. This returned data is then used to complete the low level design, additional duct ordering and Build packs.

2.12 202 – Eircom stating that surface type information cannot be provided for underground routes

Eircom object to the requirement to provide the surface type information for underground route sections. They state that they expect that the pricing for ducting will be charged at a flat rate and so this is not required.

This contradicts the current Eircom order process for new ducting, where operators are obliged to return information on the surface type that new duct is to be routed through.

The requirement is misunderstood. It is not to provide a breakdown of the different surface types for a route, rather to provide the surface type which is documented as an attribute of the route in Smallworld.

2.13 203 – Eircom stating that PAR capacity information is not reliable and so should not be provided

Eircom aim to refute the request to provide information on spare capacity by stating that the copper network is not included in PAR and that this is the most space consuming asset. They propose that all build will require intrusive survey first to identify the spare capacity in the network.

As described in section 2.11, Alt Net's in the UK do use the available capacity information for the initial high level plan. Using this approach reduces the amount of time it takes to survey the network prior to the creation of low level designs.

2.14 204 Topic – Imagery

A requirement is placed on Eircom to include imagery in the PAR data. Eircom responds by asking for a stipulation to be put in place that access seekers must supply this information or be denied access to the PIA data. They also raise an issue about the costs of storage and data management.

Response: it is not clear if Eircom currently link the photo evidence of build to their PNI data. This would be additional work. However if the photos are required and need to be linked to the assets. This can be easily achieved using the Out of the Box (OOB) 'related items' functionality in Smallworld.

Section 3 provides estimate for the development cost and timescales to implement the photo association and photo inclusion in the PAR extract.

2.15 205 Topic – frequency of update of PIA records

A requirement is placed on Eircom to update their PIA records within one month when work is completed on new build, or when PIA data changes state. This is both for works carried out by Eircom or one of its subcontractor or by an access seeker.

Eircom object to this, saying that it is predominantly linked to new PIA created for housing developments. Eircom state that they can't keep updating the records as new sections of the housing development are built. It seems unlikely that Eircom do not know when network to support sales has been installed as this is crucial readiness for service information required to enable commercial operations.

Note: this contradicts the information provided earlier about their current working practises with eMaps – sections which are built are made available and can be distinguished from planned network based on their colour.

The contradiction is that on one hand, Eircom state that they cannot update their inventory records in Smallworld/PNI in a timely manner to show build progress, while at the same time they state that they already provide this information via the eMaps system which uses the same inventory data.

2.16 206 Topic – New housing Developments

This is linked to 205. The use case appears to be:

- Developer is going to build a new housing estate
- The developer partners with Eircom to put in the telecoms network
- The development and network are built in sections over a number of years

Eircom state that they move the entire network into service after it has all been built. They do not update their records as and when sections of the network are built.

Eircom state that it would be a change in working practise to have to document that network was built for each section as it is released. Eircom also state that this is an unreasonable request as SIRO and VM do not have to do this.

There is another statement included which says that the consultants/Realworld do not understand Smallworld. Realworld have a thorough understanding of Smallworld including the PNI inventory client and the eMaps web client. In order for different styling to be used in eMaps showing planned and built areas of network, data must be stored against the inventory in the Smallworld database. This is usually done using the standard 'construction status' field[3]. If this data is available in eMaps. It must also be available in the PNI client. Anyone who understands how Smallworld works will understand this point.

2.17 207 Topic – Misunderstanding about the Eircom Smallworld solution

[3] Note: it is possible that Eircom may have added a customisation to the system to use a new custom field to capture the build status.

Eircom believe that there has been a misunderstanding about the version of software which Eircom are using – the version details were provided by Eircom, and the proposal was based on this information.

Eircom also talk about how secure access must be provided

Eircom discuss the costs of the implementation – covering licenses, software development, and infrastructure.

- Eircom confirmed that external access to their Smallworld system and data is already available to [✂ ✂].

Eircom refute the requirement to reference 'containership' information, cables in conduits, sub ducts in duct, splices in a pole, ducts in a route. It is understood that this data may not be complete or totally accurate. However it will include useful information for the initial high level planning and design. For example, if there is a duct with nothing in it, it may be available. If there is a chamber with a splice in it, it is probably not available. This is information which can be used for an initial high level design prior to survey. It will lead to fewer corrections to the design and a more efficient plan, design and build process.

Eircom object to the SLAs for performance extracts. Running queries on the database should not have a performance impact on other users. Agreed that the SLAs need to take account of scheduled maintenance windows and down time for releases etc.

Eircom have provided their estimate of the costs to implement the recommended PAR solution, as shown below.

The €1.5m rough estimate is made up of the following:

Smallworld Upgrade	€	[✂ ✂]
Smallworld Customisations	€	[✂ ✂]
Infrastructure/Environments Costs	€	[✂ ✂]
VDI (Virtual Desktop Interface) Upgrade	€	[✂ ✂]
TOTAL	**€**	**1,500,000**

As can be seen, these estimates include and update to Smallworld at a cost of Euro [✂ ✂]. This is not required to implement the solution

The proposal includes a cost of Euro [✂ ✂]to provide external VDI Access. This is already in place for [✂ ✂]. It is not clear why this cost is included as VDI access is already in place.

The time for development is greatly longer than that spent on equivalent projects for other operators, which also means that the implementation costs of Euro [✂ ✂]are much higher than expected from previous experience. Examples of previous implementations have been provided in earlier sections. Previous implementations have taken between 2 – 3 months.

The Infrastructure and environment costs of Euro [✂ ✂] to provide access to a small number of external users is significantly larger than that which would be expected based on average industry costs. A system which can support 5 concurrent external users will require a server system with around 50Gb RAM. Realworld do not have any knowledge of which equipment manufacturer Eircom use. It is unlikely that the price of a server of this size would be greater than Euro [✂ ✂]. There will be additional setup costs but these are unlikely to be of the order of Euro [✂ ✂].

3 Realworld – Estimate of Development Costs and Timescales for Imagery Support

3.1 Introduction

Realworld have undertaken a design review of a solution which could be implemented to enable photos and images to be moved to a storage area and linked to inventory records in Smallworld automatically. These could then be included in the PAR export data

This section includes assumptions on how many photos will be returned for Survey and As-Built returns on a yearly basis. It provides an estimate of the amount of storage which are required to hold the returned images and related costs.

It also includes an estimate of the costs and timescales required to implement such a solution in Eircom's system.

Note: this does not take into account photos and images related to survey and build which have been recorded historically.

3.2 Assumptions

- Eircom will be responsible for adding the additional storage required for Photo storage and will ensure that the Smallworld clients have access to the new storage. Estimates of cost and timescales.

3.3 FTTH Build and Imagery Assumptions

FTTH build rate of 200k homes per year

Photos required for all chambers including joints

Photos required for all pole which joints are mounted on

Photos required at a chamber where subducting/cables are installed

Photos required at a pole where cabling, drops are routed over

Eircom already scan returned images for harmful content.

Photos will be tagged with the location where they were taken, and the identifier of the asset

Photos will be added to a directory which is accessible to the Smallworld Clients

Number of photos required	**Survey**	**Build**
Chamber with joint	10	10
Pole with joint	10	10
Chamber with sub duct/cable (no joint)	10	10
pole with cable/drop (no joint)	10	10

Total number of joints and poles	
Number of joints	80000
Number of chambers with sub duct	50000
Number of poles with cables traversing them	75000

	Total per year	File size (mb)		Disk Space (Tb)
Number of photos Survey	2050000	8		16.4
Number of photos Build (same)	2050000	8		16.4

Typical disk drive - 10 Terabyte	Euro 2000
Ndisks required	Euro 8000

3.4 Functional Extensions required to support Imagery

3.4.1 New Job Server Job type – Move and Associate Photos

A new job type will be developed which can be scheduled to run at an agreed interval using standard OOB functionality.

This new job will scan the photo directory to find any new photos which have been added. It will:

- Check if the photo is tagged with a valid inventory id
    - If so
        - Move the photo to the photo storage area
        - Add the 'related document' link from the asset to the photo
    - If not
        - Move the photo to a designated directory to be processed later to assess the problem

3.4.2 Extension to the PAR export function

The PAR export function will be extended to ensure that any photos associated with inventory which is to be included in the extract are copied into the export.

3.5 Solution Delivery and Costs

The costs below are linked to the imagery extensions, not the original implementation costs for the PAR solution.

PAR Solution Project Costs

All estimates are based on a blend of the following non-Eircom resources

- 1 Project Manager
- 1 Technical Lead
- 1 Tester
- 0.5 Trainer
- 2 Software Developers

Eircom Project Costs

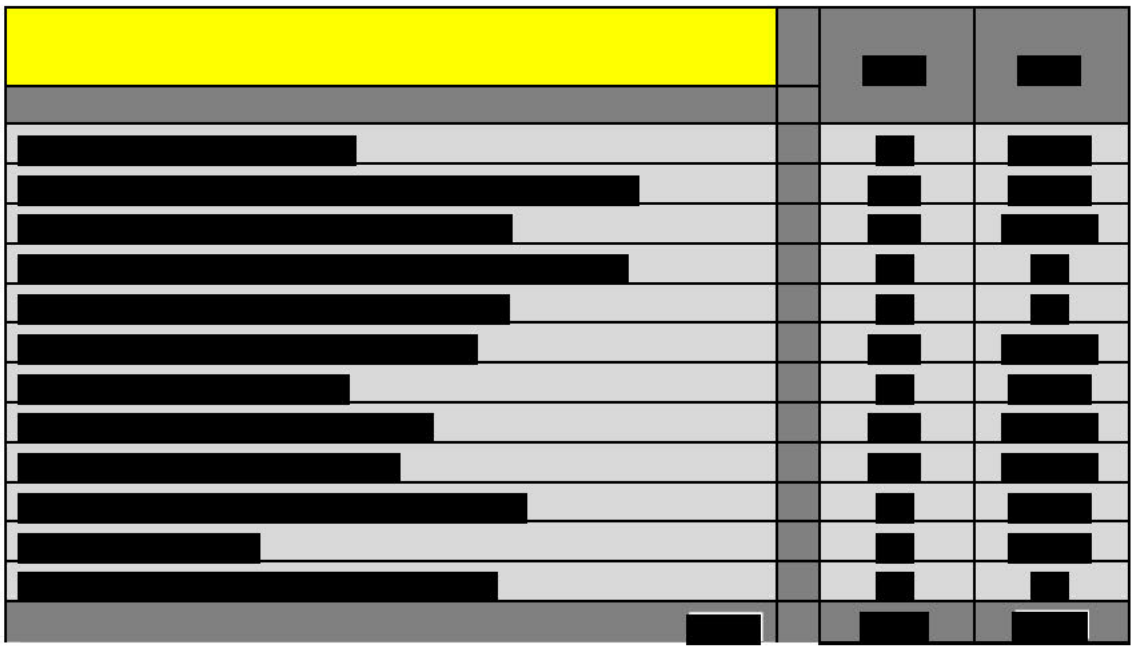
Estimates are based on a blend of the following Eircom resources

- 1 Project Manager
- 1 Test Lead
- 1 Infrastructure/Deployment Lead

3.5.1 Solution Delivery Costs

[redacted]

[redacted]



[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

3.5.2 Software License and Support Costs

Smallworld Licensing

No additional license costs

3.5.3 Server/Infrastructure Costs

Estimates for the required additional RAID storage required annually

Typical disk drive - 10 Terabyte	Euro 2000
Ndisks required - 4	Euro 8000

[redacted]