Furniture Asset Database

How do you manage a dynamic environment of circa one million assets across a portfolio in excess of 1200 buildings?

Relocom®
Asset Management

Telereal Trillium

Introduction

Technology doesn't just solve problems. It can open up new opportunities if you use it creatively. When two companies, Telereal Trilllium and Relocom, with a long history in FM partnered to come up with a furniture inventory management system for a large public sector PFI contract, they found themselves on a year long journey of discovery, with a greater reward at the end than they could have envisioned at the beginning.

What was originally intended to be simply a furniture asset database turned into a real-time live system for managing and tracking the movement of furniture assets more efficiently.

> *"What we have created is a unique and innovative technical solution for an FM industry-wide problem that utilises technology to maximise the control of moveable assets within a large and varied building portfolio. Our ability to programme an existing and widely used software product made the project viable in terms of cost, speed, ease of use and data integrity."*
>
> *(**Mark Bond**, Relocom's Software Development Manager)*

The project involved the development of a furniture asset database beginning with an initial audit and then the ongoing tracking of the current assets in situ on the Department for Work and Pensions (DWP) estate.

The solution has ensured that Telereal Trillium's understanding of volume, location and future movement is made available to the fingertips of its FMs by providing a cloud-held bespoke database accessible remotely to FMs through their iPads and mobile devices.

Background

Telereal Trillium operates in three distinct areas:

- **Property FM services**
- **Property investment**
- **Asset management**

Telereal Trillium provides FM services for the DWP – including cleaning, catering, security, buildings maintenance as well as furniture, fixtures & equipment, churn and porterage. It owns and manages in excess of 1,100 buildings nationally within the DWP estate, which includes Job Centres, contact centres and other headquarters and operational premises. The assets under management include in excess of 780,000 items of furniture.

Relocom is an industry-leading technology service provider to the FM industry with expertise in developing bespoke asset management and tracking solutions. Relocom also provides:

- **Server and Data Centre relocation**
- **Desktop additions, moves and changes**
- **Technical logistics**

1. Understanding the requirement

To manage Telereal Trillium's furniture assets proactively there was an obvious requirement for a furniture asset management system that would give a true picture of the total assets at any point in time and be capable of keeping track of the daily movement of furniture between buildings and warehouses, the addition of new items and the repair or recycling of others. To complicate matters, the day to day movements are managed by Telereal Trillium's service partner, Amaryllis, whose work order system, alongside that of Telereal Trillium, would have to be taken into account. Whatever solution was found, it would have to be implemented without disrupting Amaryllis's managed daily schedules or intruding into the office and service hours of the DWP.

"The principle was never in doubt. What made any concept of a solution daunting was not only the sheer scale of the project, but the fact that we were dealing with constantly moving and changing assets. Everything was of course being managed well, but we knew it could be improved upon with a live tracking and furniture asset reporting system if we could identify an innovative technology solution and use it effectively."

*(**Mike Grayson**, Change Management Programme Director, Telereal Trillium)*

A solution began to emerge when Telereal Trillium got together with Relocom to explore their experience in bespoke systems for IT and furniture inventory management.

"It was an unusual situation. You couldn't define the business requirement exactly until you had begun to discover what a solution might look like."

*(**Phil Helsey**, Managing Director, Relocom)*

But what was certain from the outset was that Telereal Trillium would not only need a full descriptive register of its assets, but would need to be able to keep track of their movement – and keep tabs on the fitness for purpose of every item in buildings and warehouses.

2. The business case

The business case itself was compelling. To have complete visibility of the furniture assets under management at any given time was a self-evident requirement that would benefit everyone: Telereal Trillium, Amaryllis and the client.

"We had looked at the market in the past and couldn't find a solution that could be developed from existing technologies. The cost of a bespoke software development was prohibitive."

*(**Martin Brittain**, Head of Workspace & Churn, Telereal Trillium)*

Although the scale of the initial furniture audit meant a significant cost, the cost was proportional to the overall value of the asset, and the investment cost of the technology solution itself was very low compared with the potential cost of developing and licensing a bespoke software solution.

"It is not an investment we can recover directly. But it is a worthwhile cost to ensure we provide the best possible service that over time will deliver efficiencies to our service model, and benefits for ourselves, our service partners and our clients."

*(**Martin Brittain**, Head of Workspace & Churn, Telereal Trillium)*

With the improved level of transparency, both Telereal Trillium and the DWP would have a solid foundation for any future review of assets and costs, with greater accountability and more scope for cost savings.

3. Finding an innovative technology solution

The first step was to put together an outline proposal, based on earlier inventory audit and asset management projects that were already working successfully, and to see how that could be evolved to meet Telereal Trillium's requirement.

> *"What we were looking for from Relocom was the reassurance that we were starting with something tried and tested but that offered creative opportunities to discover new ways of working, new ways of using existing technologies and systems."*
>
> *(**Mike Grayson**, Change Management Programme Director, Telereal Trillium)*

The size of the project was formidable – over 780,000 assets across 1,061 sites – but the solution needed to be simple to implement, easy to use, and straightforward to manage in the future.

The essential elements of the system would be:

1. **The data collection processes**
2. **A multi-user cloud-held database**
3. **Handheld devices for real-time updating and tracking**
4. **A simple user interface**
5. **An intelligent reporting system**

By combining existing technologies and customising each element for Telereal Trillium, Relocom aimed to bring an innovative solution to a complex task, not by developing a specific software application but by linking existing technologies – laptops, barcode scanning technology, interactive handheld devices, desktop networks and a robust online database – to create an organic and sustainable system that would be scaleable.

(See Appendix 1 for a diagrammatic schema of how the technology connects with the FM.)

The data collection processes

Relocom conducted the initial audit to capture each asset, its description and location utilising touch-screen mini-laptops pre-populated with the data fields that Telereal Trillium would require to create a hierarchically structured asset register.

Touch-screen technology for laptops was relatively new at the start of the project. Combining touch-screen and barcode technology to speed up data capture had never been tried before.

A digital photograph of each asset type was taken and added to a visual catalogue of assets as the audit progressed, along with its description and a unique product identification code.

Each item was labelled with a unique barcode, with consistent rules for the physical location of barcode labels on each type of furniture.

Each building location was also assigned its unique barcode (building ID) reference, to be held in the reception area, which would facilitate the recording of asset movement in and out of the building.

This data entry 'console' is the heart of the system, linking in real time to the asset register and reporting system.

> *"The idea behind this was to do as much as possible with pictures. That made data capture easier, and the ongoing management could be built on picture cues and not necessarily rely on product knowledge."*
>
> *(**Rick Cunningham**, Asset Project Manager, Relocom)*

(See Appendix 2 for illustrations of the console at work.)

A database in the cloud

The database itself is a modern web-based database (MySQL) held in the 'cloud', providing all the web benefits of user access via a web browser and, innovatively, the use of Excel as a 'web app' to provide the advanced reporting and data manipulation in which it is supreme.

Relocom developed the touch-screen devices using a highly programmed version of Excel to facilitate the initial data capture at a speed required to make it commercially viable across this number of buildings.

Handheld devices for real-time updating

Using pre-programmed Tricoder handheld units, Amaryllis's service delivery officers manage the delivery and facilitate the tracking of furniture between locations.

Typically, post-audit, movements would be between audited buildings, out of audited buildings into a warehouse or directly to disposal.

Briefly, the operator will scan or enter:

1. **the building code**
2. **work order reference**
3. **barcode assigned to the product type**
4. **the item status (Amaryllis use red, amber or green coding to differentiate between items for disposal, repair or fit for purpose at point of movement.)**

Data is uploaded into the database from the handheld units.

In order to achieve the objective of developing the units to integrate with the database and all the operational applications, Relocom involved the manufacturer in modifying the firmware to make it flexible enough to accommodate the requirement.

(See Appendix 3 for an illustrated description of the Tricoder handheld barcode scanner unit.)

A simple but powerful user interface

Although a sophisticated product database underpins the whole integrated process, the user front-end draws the data into Excel spreadsheet format which in turn can be interrogated by a simple graphic navigation screen specifically designed by Relocom for ease of use.

FMs don't need to be in the office to use the system. Its compatibility with the iPad and with mobile technology gives FMs access to the web-based data and puts them in control throughout a busy day in multiple locations.

(See Appendix 4 to see what the user interface and reports look like.)

An intelligent reporting system

Everything is visible. The user can see the location, volume and value of assets by product type online, and produce inventory reports to manage the assets by building, portfolio, region, or the entire estate, gauge demand and plan the use and reuse of furniture.

Using Excel, not only for data extraction but as a query tool, has made interrogation simple, and has proved extremely cost-effective by having no additional user licensing costs attached to it.

The technology has been designed to present a friendly face, to be a means to an end and not an end itself. The result has been trouble-free acceptance by both managers and the people responsible for the hands-on delivery and movement of the client's assets. By building front-end interfaces that are largely intuitive, pictorial and related to existing processes, there has been no need for technical knowledge or extensive training.

4. Implementation

The implementation presented a number of logistical problems relating to the scale and geographical distribution of assets already in use – and constantly moving.

A pilot project across three sites established feasibility, clarified the processes involved, and helped arrive at the overall project costs and timescale.

Throughout the initial audit process, the Relocom team worked closely not only with Amaryllis but with G4S, Telereal Trillium's service partner for security, and with the Telereal Trillium FM team. In order not to encroach on the working day and DWP's public service role, most of the audit needed to be conducted out of office hours. That of course meant tight security arrangements and agreed protocols to gain access to buildings and rooms.

One of the challenges the implementation teams faced was to create an accurate audit of assets that were moving in and out of buildings that had not yet been audited. It was a picture that changed every day and every hour. So provision had to be made in the scanning software to account for both unbarcoded items and unaudited buildings, to ensure that at the end of the project everything was captured in the asset register.

Relocom set up a helpdesk, whose support team had direct online access to computer terminals in the delivery depots to provide immediate real-time solutions to any problems that arose.

5. Measuring success

The project was voted a resounding success by Telereal Trillium. Telereal Trillium knows what furniture it owns and where it is at any given time. Telereal Trillium now has probably one of the largest furniture databases in the UK with a 'real-time' live tracking system.

> *"What made this project work so well for us is that we were not presented with an 'it works like this' solution. The solution arose from an amicable and often inspirational dialogue between Telereal Trillium and Relocom, with the requirement at sometimes defining what the technical solution needed to be, and at other times the technology suggesting how we could enhance the requirement."*
>
> *(**Mike Grayson**, Change Management Programme Director, Telereal Trillium)*

Overall, the blending of complementary technologies and the goal of a simple solution to a formidable asset management challenge has resulted in a cost effective technology-driven but operationally slick system that everyone is pleased with.

The increased visibility of the total assets under management has not only given more control to Telereal Trillium's management and FMs but has given confidence to their client that furniture is being managed in a proactive manner using a real-time live system. Already, in a cost-conscious public sector environment, the system is helping to make better use of furniture across multiple locations, match and reuse furniture, and meet reuse and recycling targets.

It allows better informed decisions on furniture strategy, providing detailed reports on assets. It has the potential to lower the cost of replacement and reduce capital expenditure.

Each FM is now able to manage the assets in their property portfolio better. They now know how many assets are in each building, what assets are being moved, what stock is available in each warehouse and what furniture might need replacing.

> *"The information now available at the press of a button is incredibly powerful, and puts the FMs fully in control of the assets for which they are responsible."*
>
> *(**Martin Brittain**, Head of Workspace & Churn, Telereal Trillium)*

The new technology has enabled Telereal Trillium and Amaryllis to share standardised electronic systems, processes and procedures nationally, allowing both parties to manage furniture assets in a consistent manner. Because each barcode scanner has an intuitive sequence of events and prompts programmed in, it's very easy to use.

The Telereal Trillium Central Furniture Management Team can reconcile all client furniture work order requests against what has been scanned and delivered to site. To be able to link an asset serial number and product code with a work order request is extremely helpful. The added transparency also reduces the risk of fraudulent transactions.

The data from the furniture reporting system will also assist Telereal Trillium in future years in establishing the value of the furniture asset across the estate for accounting purposes.

(See Appendix 5 for a summary of relevant data)

6. Moving forward in the FM industry

Facilities Management is a profession that takes its management role seriously, constantly seeking innovation and ways to become more efficient, and improving methodologies that will streamline operations and operational costs and deliver benefits to its clients.

The Telereal Trillium and Relocom joint project has demonstrated the value of working in a creative partnership to find novel solutions to problems shared across the FM industry. Bringing existing technologies together to create a flexible solution has proved more workable than an out-of-the-box package, and more cost effective.

The developed system has not only raised the level of control available to the FM service provider, but it meets the need to have clear evidence of the cost and value of the services it provides.

Telereal Trillium and Relocom believe that this collaborative way of working will continue to be fruitful for the FM industry as a whole. More particularly, the audit and asset management processes that have been jointly developed lend themselves to extension to a wider range of products, equipment and technology assets and promise not only a more efficient and cost-effective FM operation, but enhanced value to the clients we serve.

APPENDICES

Appendix 1

[Diagram]

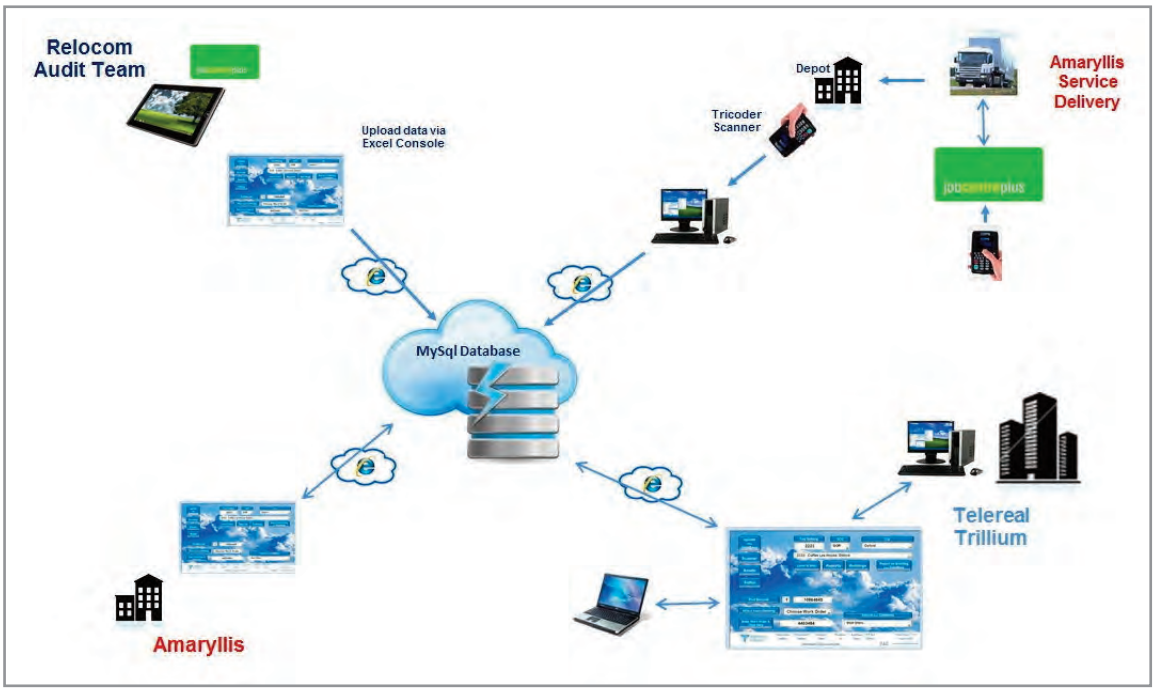


Figure 1 - Diagrammatic

Appendix 2

The console

Figure 1 - Mini-laptop

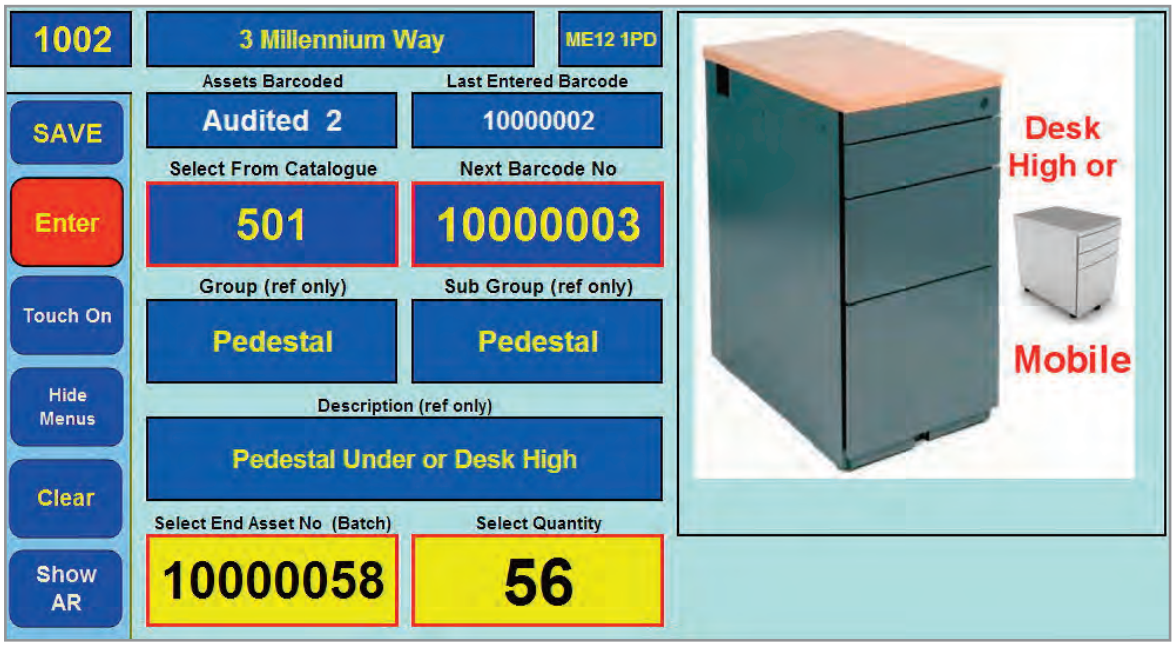


Figure 2 - Mini-laptop - data touch screen with picture prompts for users

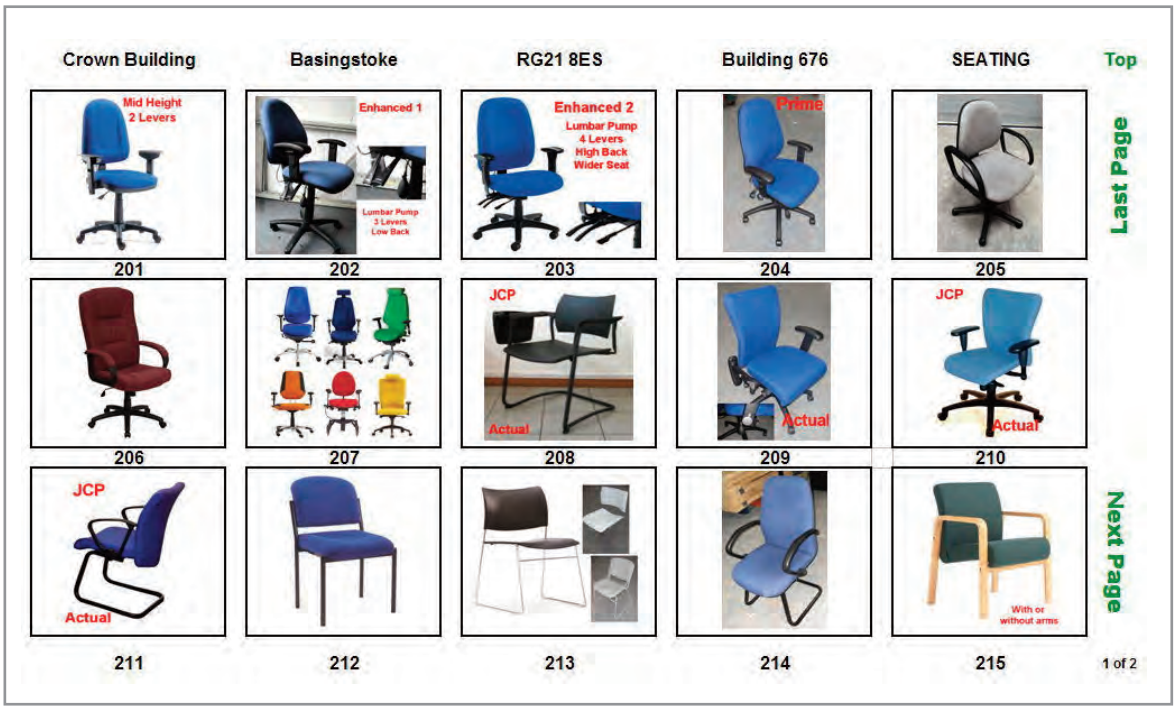


Figure 3 - Electronic furniture catalogue with product ID codes

Appendix 3

The Tricoder hand held barcode scanner

Figure 4 – Handheld Worth Tricoder barcode scanner

Appendix 4

User interface console and reports

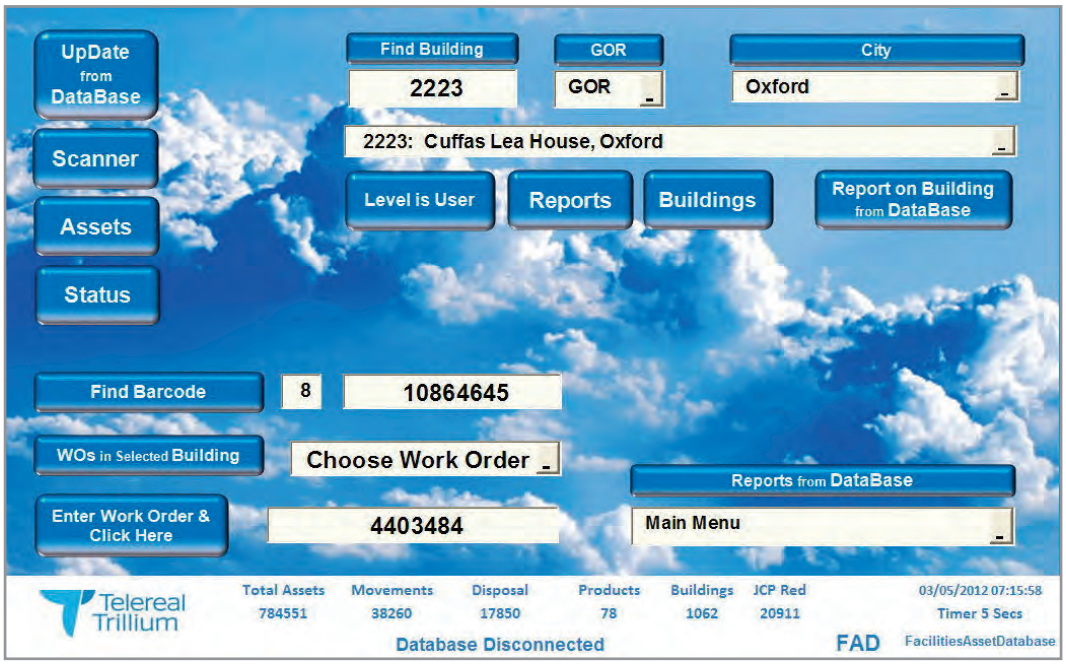


Figure 5 - Excel furniture reporting tool console

Database Disonnected
Time Taken 3 Secs
Console
UPDATE

				Chair JCP Boss Cantilever	Chair Operator Meridian	Chair Operator JCP Task	Chair Visitor JCP Breakout	Chair Meeting (Any)	Chair Meeting JCP Resource	Chair Meeting Cantilever	Chair Easy With or Without Arm	Chair Dining (Any)	Chair Operator Stool (Any)	Chair Draughtsman	Chair Meeting Old (Legacy)	Chair Easy JCP Double Sofa	Chair Easy JCP Single
1064			784904	3861	737	33186	29952	20613	6894	21152	19015	18499	697	477	606	6036	4730
Building	GOR_ID	TTid	Total_Assets	208	209	210	211	212	213	214	215	216	217	218	219	220	221
1002	G09	5	285	0	0	35	23	0	4	0	6	6	0	0	0	9	3
1003	G09	5	874	0	0	2	20	0	0	8	3	46	0	0	0	0	0
1004	G09	5	1661	0	2	2	20	33	0	0	1	43	0	0	0	0	0
1005	G09	5	1186	12	0	81	110	5	2	15	53	36	0	1	0	21	25
1008	G09	5	485	12	0	29	43	6	8	1	17	12	0	0	0	6	3
1010	G09	5	752	0	1	36	39	6	13	36	46	0	0	1	0	8	10
1011	G09	5	1860	12	2	79	85	22	11	8	28	44	0	3	0	15	3
1012	G09	5	1366	0	0	150	127	8	26	59	5	0	0	1	0	45	11
1013	G09	5	805	12	9	44	41	0	10	27	16	13	0	1	0	9	9
1014	G09	5	891	12	0	61	47	6	10	24	32	8	0	1	6	17	0
1015	G10	6	883	0	4	79	99	5	15	7	24	8	0	1	0	33	5
1019	G09	5	1225	0	0	46	44	7	12	12	12	32	0	0	0	10	11
1020	G09	5	644	0	0	35	30	45	12	30	16	0	0	0	0	7	8
1025	G10	6	86	0	0	4	0	19	0	10	7	0	0	0	0	0	0

Figure 6 - Asset data collected between Jun 2011 and Apr 2012

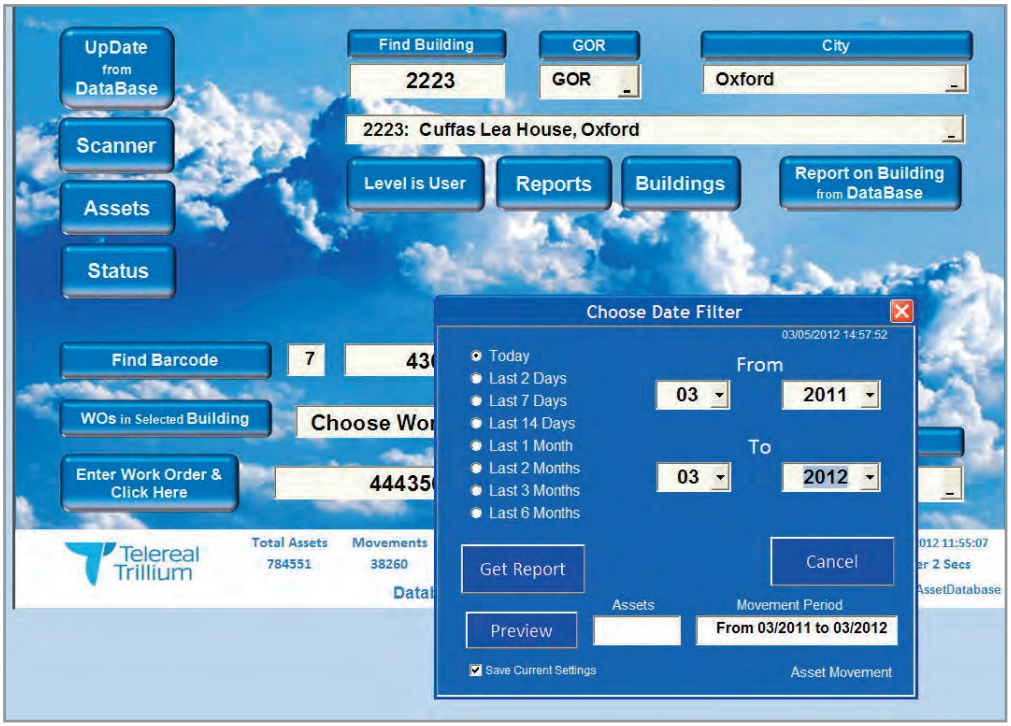
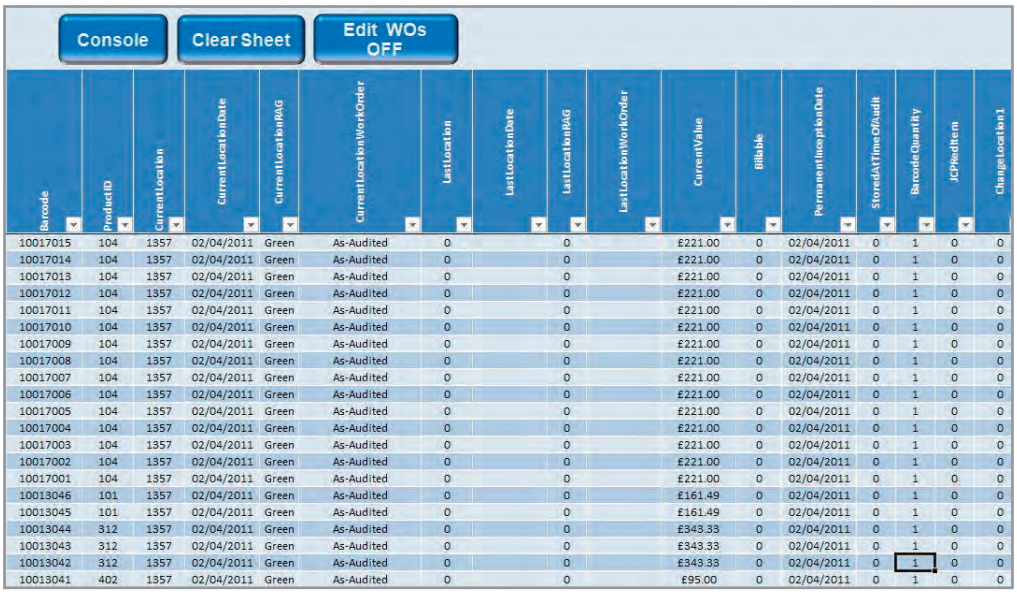


Figure 7 – Choose data filter for Asset Movement Reports



Barcode	ProductID	CurrentLocation	CurrentLocationDate	CurrentLocationRAG	CurrentLocationWorkOrder	LastLocation	LastLocationDate	LastLocationRAG	LastLocationWorkOrder	CurrentValue	Billable	PermanentInceptionDate	StoredAtTimeOfAudit	BarcodeQuantity	JCPiedItem	ChangeLocation1
10017015	104	1357	02/04/2011	Green	As-Audited	0		0		£221.00	0	02/04/2011	0	1	0	0
10017014	104	1357	02/04/2011	Green	As-Audited	0		0		£221.00	0	02/04/2011	0	1	0	0
10017013	104	1357	02/04/2011	Green	As-Audited	0		0		£221.00	0	02/04/2011	0	1	0	0
10017012	104	1357	02/04/2011	Green	As-Audited	0		0		£221.00	0	02/04/2011	0	1	0	0
10017011	104	1357	02/04/2011	Green	As-Audited	0		0		£221.00	0	02/04/2011	0	1	0	0
10017010	104	1357	02/04/2011	Green	As-Audited	0		0		£221.00	0	02/04/2011	0	1	0	0
10017009	104	1357	02/04/2011	Green	As-Audited	0		0		£221.00	0	02/04/2011	0	1	0	0
10017008	104	1357	02/04/2011	Green	As-Audited	0		0		£221.00	0	02/04/2011	0	1	0	0
10017007	104	1357	02/04/2011	Green	As-Audited	0		0		£221.00	0	02/04/2011	0	1	0	0
10017006	104	1357	02/04/2011	Green	As-Audited	0		0		£221.00	0	02/04/2011	0	1	0	0
10017005	104	1357	02/04/2011	Green	As-Audited	0		0		£221.00	0	02/04/2011	0	1	0	0
10017004	104	1357	02/04/2011	Green	As-Audited	0		0		£221.00	0	02/04/2011	0	1	0	0
10017003	104	1357	02/04/2011	Green	As-Audited	0		0		£221.00	0	02/04/2011	0	1	0	0
10017002	104	1357	02/04/2011	Green	As-Audited	0		0		£221.00	0	02/04/2011	0	1	0	0
10017001	104	1357	02/04/2011	Green	As-Audited	0		0		£221.00	0	02/04/2011	0	1	0	0
10013046	101	1357	02/04/2011	Green	As-Audited	0		0		£161.49	0	02/04/2011	0	1	0	0
10013045	101	1357	02/04/2011	Green	As-Audited	0		0		£161.49	0	02/04/2011	0	1	0	0
10013044	312	1357	02/04/2011	Green	As-Audited	0		0		£343.33	0	02/04/2011	0	1	0	0
10013043	312	1357	02/04/2011	Green	As-Audited	0		0		£343.33	0	02/04/2011	0	1	0	0
10013042	312	1357	02/04/2011	Green	As-Audited	0		0		£343.33	0	02/04/2011	0	1	0	0
10013041	402	1357	02/04/2011	Green	As-Audited	0		0		£95.00	0	02/04/2011	0	1	0	0

Figure 8 – Screenshot of product movements over a period.

Appendix 5

Summary of data

Buildings in the managed estate bar coded	**1,061**
Total assets on the database	**785,445**
Furniture items moved (June 2011-April 2012)	**34,285**
Furniture items disposed of	**16003**
Landfill target achieved	**less than 5%**

Asset register Summary

Category	Category types	Total assets
Desks	15	134,282
Seating	28	293,434
Storage	24	157,126
Tables	8	31,617
Pedestals	3	169,402

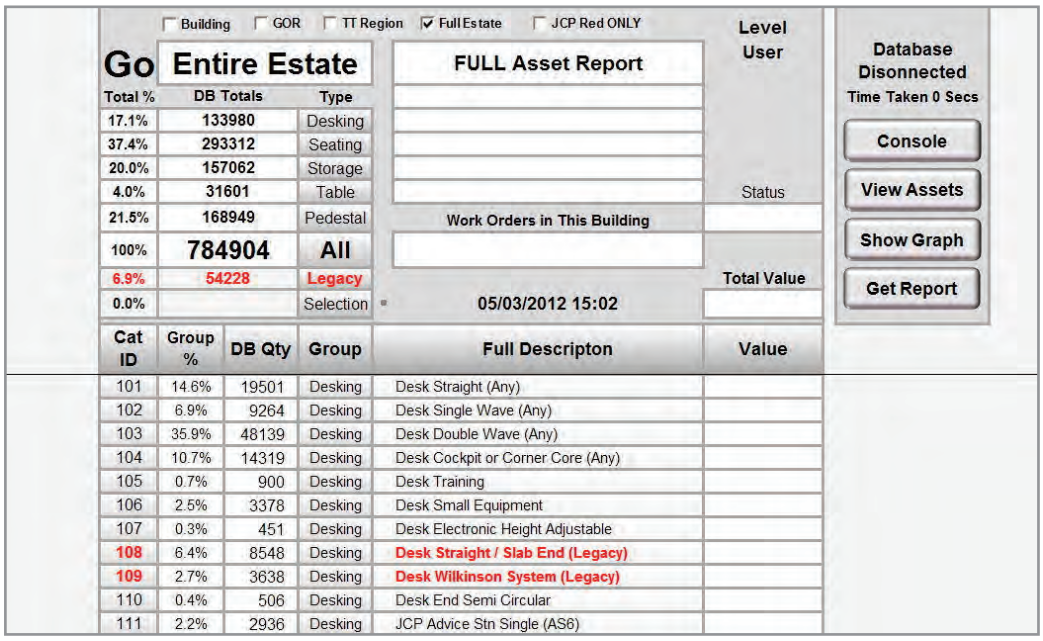


Figure 9 – Screenshot of summary furniture asset page for DWP estate

FM database updating from the iPad

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