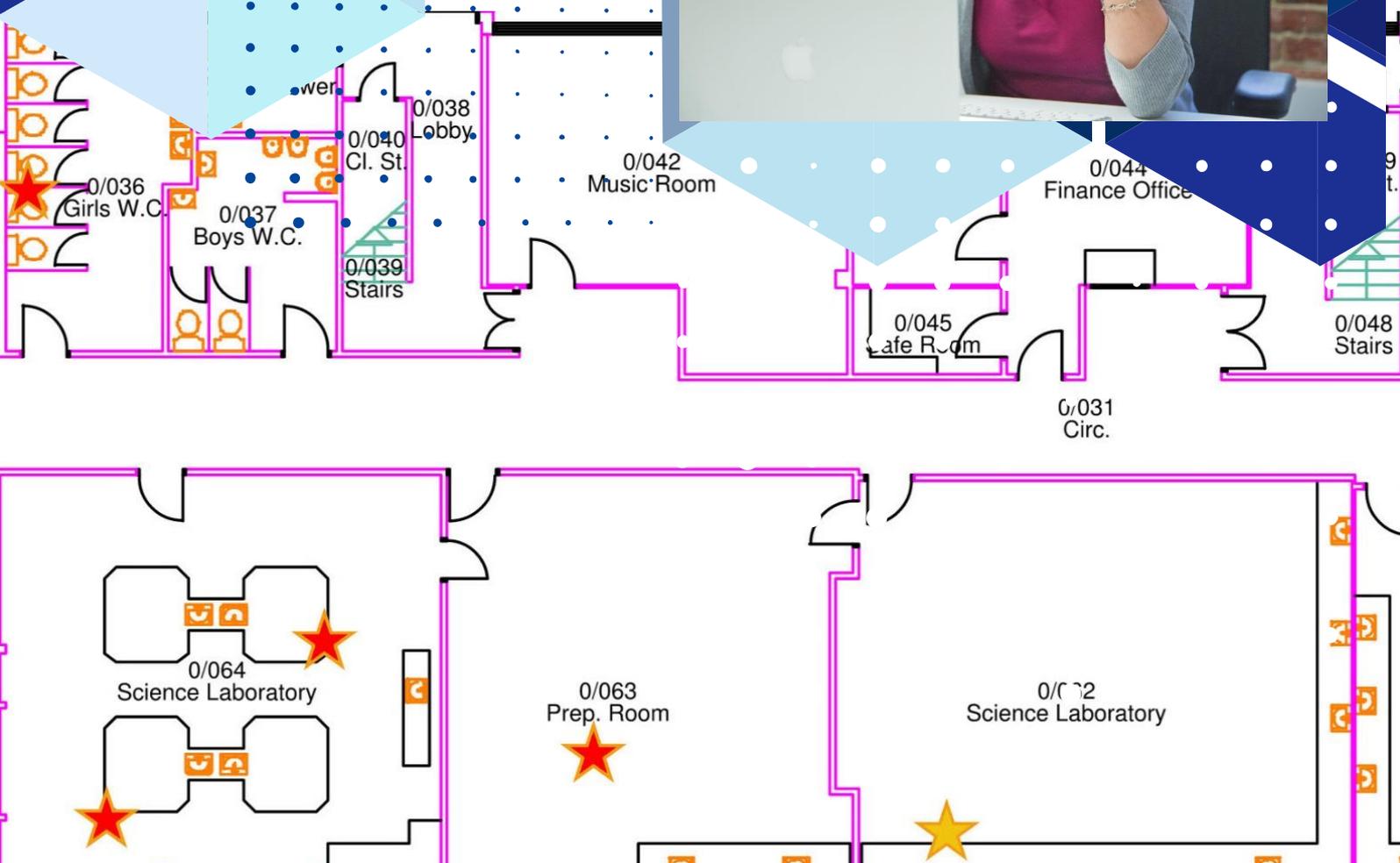


How Visualisation Benefits Multi-School Asset Management

Managing multiple schools in a trust, federation or cluster creates opportunities to maximize the use of asset and maintenance data.

This eBook examines how a visual based approach to data management can help managers make informed decisions.



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Introduction

This eBook examines how the opportunities of managing asset and maintenance management processes across multiple schools in a MAT, Federation, Trust or Cluster can be met by effective and efficient information sharing through highly visual software.

The benefits of visualisation apply to smaller groups of schools which form the majority of existing collaborative arrangements as well as larger groupings.

This eBook references multi-academy trusts but the collaborative principles apply to any grouping of schools whether they are in federations, chains, clusters or informal arrangements.





In March, 2016 it was announced that all schools in England will either have to convert to Academy status by 2020 or be committed to converting by 2022 which has put academies into the spotlight again.

Schools currently under local authority control potentially face increased costs as economies of scale available via the authority disappear.

These challenges will encourage more co-operative working between schools to mitigate budgetary and resource challenges.

MATs, Federations, Clusters

6 out of 10 academies are forecasted to be running a deficit in the next two years (1) placing continual pressures and challenges on school leaders and managers to maximise efficiency and to seek cost savings. Collaborative working between schools provides incremental opportunities for efficiency and cost savings in addition to what a school can achieve independently.

Collaboration takes many forms such as Multi-Academy Trusts (MATs), federations, clusters, chains or simply informal working arrangements between schools.

Through collaboration, schools can take advantage of:

- Additional ways to save costs
- Improve the efficiency and utilisation of resources.

MATs in more detail...

MATs are an established and growing part of the UK education system. 85% of all new academies in 2014–2015 were part of a MAT. 57% of all open academies were functioning within MATs and benefitting from being part of a wider school ecosystem. At the end of July 2015 there were 846 multi academy trusts in England(2).

It's often assumed that a MAT consists of a large grouping of academies however, as can be seen in Figure 1 below the majority are a group of two to five academies. This group is increasing - up from 224 to 517 since 2011 as a consequence of the Government encouraging the creation of smaller MATs rather than fewer larger ones. Many of the single academy trusts will become MATs over time adding to the growth in smaller size MATs.

Many schools will also convert to Academy and Free school status under the new 'coasting schools to accept new leadership' campaign and this is likely to lead to further growth in the number of MATs.



Goal – shared services for all

MATs provide an opportunity to operate in a shared services environment.

Many of the larger MATs consisting of, for example, more than 16 academies may be run by organisations with well-established centralised IT systems enabling these academies to benefit from shared services and economies of scale.

However, what about the majority of schools in smaller groupings?

Number of multi-academy trusts by number of academies in the trust

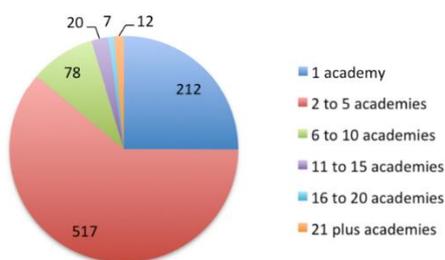


Figure 1 "The rise and rise of multi-academy trusts – latest DfE data"

<http://roberthilleducationblog.com/2015/08/>

Collaborative working provides key benefits:

- Schools with limited individual capability gain the opportunity to access services on a shared cost basis enabling them to take advantage of services previously inaccessible or too expensive to utilise.
- Schools offering services are able to maximise the utilisation of these services and derive additional income streams. Typically, these might be shared teaching resources, financial or administrative services. For example, a large school could provide the back office functions for smaller schools.

Asset and maintenance management is an under-utilised opportunity for collaborative working. How can smaller groups of schools working together as well as larger ones benefit?

Capital and Maintenance Savings

There are two key areas where easy access to data across multiple schools is beneficial:

- Capital maintenance programmes – e.g. new build or extensions
- Routine maintenance programmes – e.g. repairs, refurbishments

Co-ordinating and sharing information across a MAT offers a number of advantages:

- Potential cost savings by pooling capital works through larger contracts (while being aware of EU Procurement rules)
- Simpler project management and less costs through working with one contractor rather than several across a MAT's network of schools
- Co-ordinating routine maintenance activities. For example, identifying that several schools in a MAT require re-painting or refurbishment works offers the opportunity to co-ordinate the work into a higher value scope of works. This may secure savings on contract costs as one contractor could bid for multiple works.
- Prioritisation of a MAT's human and capital resources based on need e.g. assessing routine maintenance needs and the subsequent allocation of these funds between schools within a MAT.

“A holistic view across schools of asset and maintenance plans is critical to support effective shared services.”

Data Visualisation

Federated systems

A federated systems architecture enables multiple schools to run their own systems while pooling data.

This architecture preserves the investment in systems that schools may already have made. It offers the path of least resistance to sharing data but may not in the long term be the most cost-effective solution.

Data of relevance to the MAT or cluster is sent to a system for analytical purposes. This requires common data standards between the federated systems or alternatively a mapping process which takes disparate data from many systems and then maps it to an agreed set of data standards in order to provide a common data dictionary for reporting.



Bursars and school business managers in any size MAT should be able to co-ordinate and pool asset and maintenance management activities. Smaller MATs may not have the infrastructure nor resources to support a sophisticated enterprise level solution. Furthermore, any individual systems currently in use may not be capable of operating in a multi-school capacity. This needs the ability to hold data about several academies in a single system and to then report or share data across them.

One solution is to introduce a single system across the MAT. However, this may not be appropriate if systems are already in place given the investment an academy will already have made. Unless there are other reasons to do so changing systems in order to facilitate data sharing across a MAT may not be financially justifiable.

Another alternative is to provide a means to bring data from different systems together. This federated approach enables individual schools to continue to use their preferred systems while benefiting by pooling specific data with other schools in the MAT.

This requires the ability to operate a system which can:

- Offer a maintenance capability in its own right for those academies that wish to use it; and
- Collate data from different systems to act as a central analytics and reporting portal.

Systems such as Altuity's AltoSites™ include their own asset and maintenance functionality and use REST Application Programming Interface's to provide connectivity with other systems.

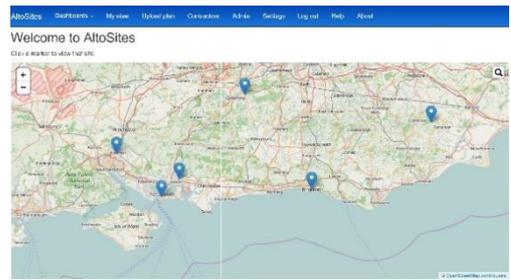
Selected data can be pooled for reporting and analysis. As described above this could potentially be summary information related to planned capital works programmes and maintenance activities. The other advantage of pooling data is that it can be used for **Key Performance Indicator** purposes helping to highlight different issues and challenges that maybe facing the MAT's academies.

Using analytics and dashboards information can be accessed very easily. For example, figure 3 shows a detailed report of faults / defects across several school sites colour coded by estimated repair costs.

Figure 4 shows a breakdown of routine maintenance issues between schools with each horizontal bar colour coded by the type of issue.

Site Name	Marker Type	Marker Name	Priority	Def Type	Def Asset	Est Cost	Building
Chestnut Avenue School	Site Defects	Blocked drainage	Routine	Flooding	Drainage	450	Other
Chestnut Avenue School	Site Defects	Broken Tiles	Routine	Missing	Other	120	Main Hall
Chestnut Avenue School	Site Defects	Broken window	Routine	Cracked	Window	200	Library
Chestnut Avenue School	Site Defects	Broken window	Routine	Broken	Window	95	Sports Hall
Chestnut Avenue School	Site Defects	Broken window	Routine	Cracked	Window	80	Sports Hall
Chestnut Avenue School	Site Defects	Damaged vending machine	Routine	Broken	Other	189	Main Hall
Chestnut Avenue School	Site Defects	Damaged wall	Routine	Other	Other	150	Portacabin A
Chestnut Avenue School	Site Defects	Door in the Sixth Form	Routine	Broken	Other	75	Other
Chestnut Avenue School	Site Defects	Fire Alarm Defect	Urgent	Broken	Other	45	Main Hall
Chestnut Avenue School	Site Defects	Gas valve defect	Urgent	Broken	Gas	500	
Chestnut Avenue School	Site Defects	Loose manhole	Urgent	Other	Manhole	150	Main Hall
Chestnut Avenue School	Site Defects	Manhole broken	Routine	Broken	Manhole	75	Other
Chestnut Avenue School	Site Defects	Pothole on main drive	Urgent	Pothole	Other	500	Main Block
Havant	St Catherines Defects	Missing Tiles	Routine			200	Main Block
St Catherines	St Catherines Defects	Blocked drainage	Routine	Blocked Drainage	Drainage		Main Building

Fig 3 Cross-academy site fault report - colour coded by estimated cost of repair.



Portal view of multi-school management

A multi-school system must provide the means for schools to manage their own data and facilitate sharing for cross-school reporting purposes.

Each school manages their own secure data in a common, cloud-based environment and shares data (through direct or in-direct access) which is needed to support improved capital and maintenance activities. Other data can remain confidential to the school.

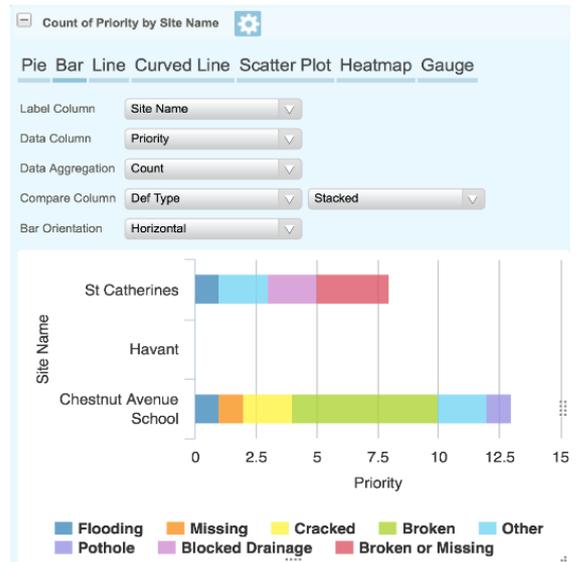


Fig 4 Bar chart showing faults by type between different sites

Figure 5 in comparison shows a summary heat map of routine maintenance costs by individual school site.

The relative size of each school's shaded area indicating at a glance its proportion of the overall costs.

As can be seen once data has been pooled it can be assessed and compared easily and quickly. This enables limited resources to be targeted effectively and for prioritisation to be undertaken based on data.



Fig 5 Graphical heat map showing the proportion of costs between schools to fix faults.

As well as providing high level analysis it's important to have the capability to drill down to individual schools. For example, a summary report such as the one shown in Fig 6 should be drillable down to individual records.



Fig 6 Text cloud report where the text size indicates the total cost of each type of defect. This can be drilled down to individual issues as shown in Fig 7.

This means views such as that illustrated in Fig 7 can be accessed. This uses a floor plan to provide a graphical view of where an issue is located and also supports the display and management of other data in that area – in this example ICT assets. Intuitive visualisation such as this helps with understanding the data that's being managed while improving operational effectiveness.

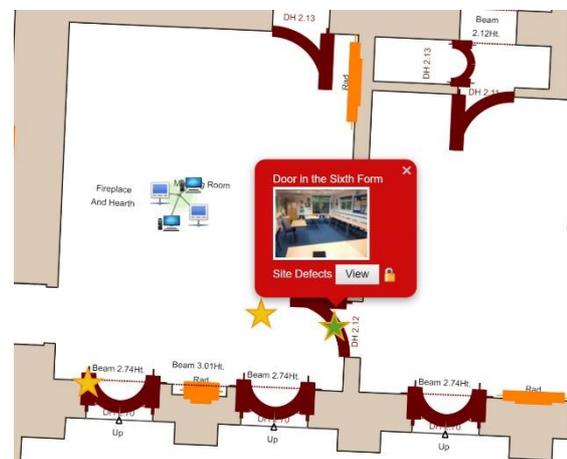


Fig 7 Graphical floor plan based view showing the location of a problem and also illustrating the ICT assets located in the room.

Summary

A visual led approach to managing data across multiple schools provides managers with a better and simpler way to monitor, control and prioritise capital and maintenance management requirements. From a systems perspective this can be achieved via a single multi-academy software solution in the MAT, federation or cluster.

Alternatively a federated approach enables individual schools to use existing systems and to provide extracts of data to another system for integrated, visual multi-school reporting.

A holistic view provides the basis for taking co-ordinated actions; identifying priorities; using economies of scale to seek cost reductions and encourages the efficient utilisation of resources.

As the DfE's Governance Handbook⁽³⁾ states the boards of maintained federations and MATs will have a more ***"strategic perspective and the ability to create more robust accountability through the opportunity to compare and contrast between schools"***.

Finally, and importantly, as a manager and leader what does this mean for you? The Handbook neatly summarises this:

- Bigger leadership challenges for middle and senior leaders, while also easing the overall leadership challenge through more supported leadership roles;
- Financial efficiency – through shared procurement;
- Economies of scale – that make employing specialist finance directors and business managers with vital skills more feasible.

To discuss how your MAT, federation or cluster can benefit through the use of an innovative visual software solution please see the next page for contact details.

References

1. "Academies Bench Mark Report, 2016" UK Academies Group, Kreston International & PEM
2. "The rise and rise of multi-academy trusts – latest DfE data" <http://roberthilleducationblog.com/2015/08/>
3. "Governance Handbook" For trustees of academies and multi-academy trusts and governors of maintained schools. Department of Education, November 2015

About the Author

Steve Voller, Altuity's founder, has worked with asset and maintenance management software in the UK and internationally for over 20 years.

His passion and vision is to deliver sophisticated and intuitive software for managing the built environment. Altuity's software is accessible to all – including those currently without systems – helping more people to cope with the challenges in their daily working lives.

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