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Are Education **MANAGEMENT INFORMATION SYSTEMS** Future-Fit?



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SUMMARY

Preparing schools for an uncertain future is a key role of educational technology; education needs the right tools in order to navigate the requirements of stakeholders - parents, government or the demands of Ofsted. Ultimately, this technology needs to effectively support the learning outcomes of students.

The research questions posed in this white paper look at whether management information systems offer schools and MATs all they need to deliver the outcomes that are needed in the changing and demanding world of education.

The major themes which emerged revolved around the demands of time and funding, as is to be expected in modern education settings; however, other interesting threads in relation to the demands of data reporting and analysis were also clear to see.

The findings reveal the future needs of schools rooted in on-demand access to MIS software in order to enable ease of communication, and to create simple audit trails across teams to relieve time pressures and increase effectiveness. This research shows that a future-fit MIS will need to assist schools in registering students and mapping attendance, as well as assisting them in ensuring that safeguarding is front and centre in all that they do. In short, this research demonstrates that future-fit MIS software needs to seamlessly address the key pressures facing different groups of colleagues in schools and MATs.

With the right features, such software will enhance the ability of those working in education to more easily and effectively deliver the outcomes required for our children and young people.



BACKGROUND

THE DEMANDS PLACED ON SCHOOLS

Schools' resourcing is stretched. On average, schools spend three-quarters of their budget on staffing costs. With little left for other essentials, such as administration staff, resources, facilities management, and technology, whatever is brought in needs to address multiple pain points. For schools, the purchase of back-office technology is mainly driven by the need for time efficiencies; for providers of educational technology, there is an imperative for products to deliver on multiple fronts, to aid professionals in a complex environment.

Government funding of schools is second only to health, with £90bn being spent in the year 2017-18 in today's prices, which equates to 4.3% of the national income. However, according to the National Audit office, in 2019-20 schools were asked to make savings of £3bn. As a result, efficiency is going to be critical to the procurement of whole school systems. Therefore, a product which offers long-term value for money will be sought after by school leaders and business managers.

While financial limitations are significant, the time needed to deliver required data and information to stakeholders is also going to drive purchase decisions - and there are significant data demands made on schools. For example, in January 2021, schools were required by government to submit their School Census Spring 2021 attendance data; this was needed to help assess the impact of the pandemic on the education of young people.

What does all this reveal about the need for future-fit MIS? Firstly, data collection is imperative to central government. Secondly, without the right MIS software, schools will find legislative demands for data reporting challenging, especially in times of uncertainty. As the Young Foundation reported, in their Commissioning Futures: A Guide For Schools (2018), 'Working with external providers, particularly those offering innovative services, can help schools address [their] specific challenges'. Understanding these specific challenges, and evolving features and functions that genuinely support schools and MATs, will distinguish the best MIS from the others.

In the past MIS was characterised as a means of monitoring attendance and collating data across the school but, with the modern pressures now facing schools - such as the time drains of timetabling and the management of financial resources - are the MIS providers of today offering true efficiency and value for money?



WHAT CAN SCHOOLS LEARN FROM BUSINESS?

In 2019 the Forbes Technology Council revealed the four factors that ensure all technological solutions, such as MIS, are futureproof. These factors include:

- API-led connectivity:** application programming interfaces (APIs) act as connectors between apps and data systems. APIs allow you to have different IT systems yet still experience connectivity through a single platform. The use of APIs in software development prevents the creation of data silos.
- Machine learning and artificial intelligence:** while there is much hype around artificial intelligence (AI) and machine learning, they offer a real opportunity to automate manual processes and save time. It is currently possible to set up operations to identify such issues as fraud, or malfeasance, which could easily be extended to patterns in attendance and progress data that should raise concern.
- DevOps:** this provides an intelligent way of framing how conscious business and educational leaders are of the development maturity of the technology within their organisations. This consciousness can stretch from a state of not knowing what is missing - and needs addressing - right through to having the agility to make instant recommendations about updates and upgrades.
- Cloud:** the ultimate sign of the flexibility and agility of technology is whether it is underpinned by cloud infrastructure, allowing on-demand access to data wherever required. Moving from data centres to a 'Software as a Service' (SaaS) model will enable enterprises to be 'nimble and adaptable' (Forbes, 2019).

As noted in CMS Wire in March 2021, 'The traditional, megalithic, on-premises infrastructure solutions, typically deployed in most organisations, are ill-equipped for a future that requires flexibility and scale to operate in.' Traditional systems require too much time to deploy and scale to be effective in a rapidly changing technological world.

There is also recognition from experts in the field that, 'Modern businesses can't survive for long without using some sort of MIS to manage massive amounts of data' and that it is a 'changing and challenging field'. (Smartsheet, 2021)



WHERE DO WE GO FROM HERE?

In her report, *Commissioning Futures: A Guide For Schools*, Amanda Hill-Dixon recommends the effective 'commissioning and implementing [of] innovative services' as a means of overcoming the educational inequality that is further entrenched by what the National Education Union consider to be unfair funding models. Consequently, schools and MATs require educational technology services which will provide the support necessary to deliver powerful learning experiences for all.

The innovations created in the world of business provide some context for what school MIS software could, and should, do in the future - lessons can be taken from the private sector and into the educational setting. More attention needs to be given to how these potential features and functions of business-based management information systems might support the needs of schools.

School business managers and leaders need to be clear on what they demand from innovation in order to explore this issue in more detail. What can MIS deliver that will offer the value for money and effectiveness to help schools in the future?

RESEARCH METHODOLOGY

In order to explore the current challenges faced by schools and MATs more broadly - and to understand current and hoped for experiences of MIS - we designed a survey of 26 questions. This reader survey gathered the experiences of schools and MATs and has revealed some important findings that we have collated into this guide.

In total, 265 responses were received. Almost half of these respondents worked in primary schools and all but 15% were in school leadership or business management roles. The independent sector and PRUs were also well-represented in the sample. Geographically, respondents were drawn from all areas of the country.

RESEARCH AND SURVEY FINDINGS

The following section explores the results from the survey undertaken by school leaders, business managers and teachers. The survey posed a series of questions focused on current challenges faced by schools and MATs, drilling down into their current experience of MIS software, and their requirements of MIS software into the future.

This research revealed much about the current demands on, and future requirements of, schools, and their requirements for the MIS software of the future. The headline from this survey is that there is a demand for change and evolution in what MIS software can do for schools; the details reveal limitations, and long-held demands, that need to be addressed for the schools of the future.

It offers a real opportunity
to automate manual processes
and **save time**





THE PROBLEMS SCHOOLS FACE

THE COVID EFFECT

A survey completed in 2021 is always going to be influenced by COVID-19 and its various lockdowns. Many respondents ticked 'Other' when talking about the challenges faced (32%) and any factors that impacted their ability to do the job required (21%). When asked to specify, the impact of the pandemic was listed on most occasions. While it is possible to reflect on this context as an outlier, it does reflect the ever-changing world in which schools operate, and contributes to the demand for a future-fit MIS which is responsive to rapidly changing circumstances.

The other challenges faced by schools which were noted by our readers are likely to come as no surprise as they have been long-established problems in our schools.



LIMITED TIME

One-in-five (21%) respondents noted that lack of time for other staff members to complete tasks impacted their ability to their jobs; school leaders' and business managers' use of data is only as effective as the source. If teachers and other colleagues lack the time to input and manage data, there is a flaw in the process.



FUNDING

This was another universal theme identified among the most significant challenges faced by schools - 29% listed funding as a major difficulty facing schools. The DfE's call for schools to purchase MIS software that provides value for money, rather than being the cheapest, is likely to be prohibited by the state of school budgets. Indeed, 87% of respondents agreed (31%) or strongly agreed (56%) that they were expected to do more with less funding and fewer resources. When asked about the barriers to the introduction of new technology, funding was by far the most often cited, with 77% of respondents saying this was the first and second most limiting factor.



WORKLOAD

The burden of a heavy workload in education is an ongoing problem. When asked what issue contributed to increasing workload, school data analysis was by far the most prominent response, with 43% of respondents noting this as the most significant issue they faced; no fewer than 89% placed it within their top three issues. Connecting this school issue to best practice in business suggests that some sort of data analysis automation would significantly benefit school leaders and business managers.

Reporting and moving information (63%) and the demands of data protection and GDPR (71%) also featured highly in the top three issues contributing to workload. While the security of MIS software is a given, these results also suggest the need for centralised reporting; the bringing together of applications for data management and reporting would significantly reduce workload in schools.



If teachers and other colleagues lack the time to input and manage data, **there is a flaw in the process**

THE CURRENT STATE OF MIS IN SCHOOLS

LIMITS OF MIS

Over half of those questioned were unable to agree, or strongly agree, that their school or MAT provided the right tools and resources to enable them to do the job. When asked specifically about their current MIS software, 48% felt it was 'Okay, but with obvious limitations'. A minority, 16% overall, felt hindered by the system currently in place.

ATTITUDES TO INNOVATION

Interestingly, 76% of respondents were satisfied (62%) or very satisfied (14%) with the updating and modernising of operations and administration within their schools or MATs. Considering the Forbes (2019) understanding of DevOps, and the maturity of the systems in place, schools and MATs appear to feel themselves to be relatively well-appointed. It appears that, while school business managers and leaders feel limited by the software and procedures they are working with, there is a willingness, and structures in place, to evolve to new technological solutions. This finding suggests that MIS software providers can be ambitious in developing products within the limitations of the budgeting issues identified.

More good news is that schools do have the technological infrastructure to deal with future advancements in MIS software; 75% of respondents reported having cloud-based IT in place, 84% had invested in high-speed internet and wi-fi, and 92% of schools already have a management information system - with two-thirds currently opting for SIMs from Capita.

GAPS IN PROVISION

The survey also identified gaps in school technological capabilities. For instance, 44% of respondents did not have apps for teachers to capture work and assessment, only 26% of respondents have an online payments platform, and just 39% had the capacity for parents to view student data. A future-fit MIS would need these capabilities - probably as modules or APIs - so that all data can be integrated into one repository.



LIMITING RESPONSE TO STUDENT WELFARE

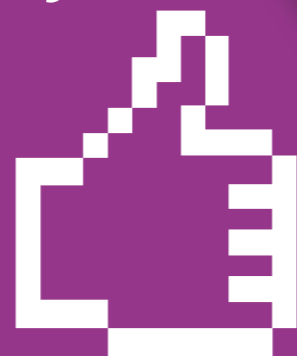
This has always been a significant function of MIS software in schools, and it was concerning to see that 42% of respondents stated that their current system lacked effectiveness in pastoral matters such as attendance and behaviour - although only 11% went so far as to say that their system was actually 'ineffective'.

The importance of student welfare to ongoing success in this aspect makes this a key area of development for future MIS software development. It raises the question, 'What more should the software be doing?' It suggests the need for a dedicated module to manage the welfare of students and to aid SENCOs in the creation of reports in relation to SEND students.

POOR USABILITY

When asked to state the greatest challenges in relation to the current MIS being used, respondents believed data interfaces and usability were the most significant, with 21% stating these as their biggest concerns, and 35% selecting them within their top three. The other big challenge cited was the fragmented nature of applications used - apps which don't 'talk to' each other; 51% of respondents placed fragmentation in their top three concerns about their current MIS. It seems clear, then, that one platform which offers all the core modules required within the same system seems a top priority for school business managers and leaders.

One platform that offers all core modules required within the same system seems a **top priority**



WHAT DO SCHOOLS DEMAND FROM THE MIS SOFTWARE OF THE FUTURE?

CLOUD TECHNOLOGY

There is a correlation between the high demand for cloud technology and the concerns over time required by others to complete the work needed for successful data management (see The problems school face – Limited time, above). If school business managers and leaders are to use data to its full potential, other colleagues need the flexibility to upload and manage data where and when they do administrative work. An infrastructure that requires on-premises data management reduces flexibility for staff to complete such tasks as part of planning and preparation time away from the building.

IMPLEMENTATION

A key challenge for MIS developers is to overcome problems of compatibility with existing systems; 45% of respondents saw this as one of the top two barriers to introducing new technology into their schools, alongside funding issues. Add in the 26% of respondents who felt there is insufficient time for training staff in the use of new technology, and the problem of creating a product which offers value for money and a more comprehensive support package - including software integration - is evident.

Integration was noted as a top three priority by 71% of respondents. School business managers and leaders have a strong enough vision to appreciate that the school system is fragmented, and they are clear in their demands for greater compatibility – for example, 27% stated that the benefit of introducing a new MIS would be that they could bring all their software together within one platform.

EFFECTIVE AND TIMELY ANALYSIS

Of all the top considerations demanded by respondents of future MIS software, the effective use of data (86%) and saving of time (86%) appeared most in the top three priorities; a cloud-based product was desirable for a future-fit MIS according to 20% of respondents. Schools are complex organisations and need secure access to information, as and when necessary, to help with all activities, from writing reports to tracking attendance, and more, all from a single platform.

Schools are complex organisations and need **secure access** to information



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FURTHER DISCUSSION AND RECOMMENDATIONS

ISSUES FOR MIS DEVELOPERS

Schools have always had to deal with legacy systems that have evolved over time; old software and technologies live alongside newer packages and are largely incompatible, creating a fragmented system with poor usability. Current MIS management information systems are clunky, and eat into the valuable time needed in schools for other, more pressing, learning and child welfare matters; for example, any time taken to move data manually from one application to another is time taken from the education and care of students.

BEST PRACTICE FOR THE FUTURE

Looking to best practice within business, there are lessons to learn for MIS in schools and MATs. Clearly, a cloud-based solution is essential; 75% of schools and MATs in our survey already invest in cloud infrastructure, and a further 20% see it as necessary for software that would be fit for the future. This is not just about accessibility; it is also about scalability because on premises infrastructure is slow to develop, and slower still to evolve.

Another vital feature of a future-fit MIS would be an integrated platform that brings together everything that a school needs now - and might need in the future. While software developers can create APIs that integrate existing packages into a single, functioning dashboard, better still would be a single platform, divided into modules, and drawn from a single repository of data. For instance, when time is a significant issue for schools, and 44% of organisations do not have applications for teachers to capture work and assessment, there is evidence of a weakness which could be effectively addressed by a better MIS.

INTUITIVE FEATURES

Applications which enable teachers to report on their work are best exemplified by one simple feature. Imagine a student who has arrived at school in the morning after a violent incident at home. The child is distressed, and lacking focus, and they may not be wearing their tie today. If the tutor could record a message which appears in the register of all staff involved with that child that day, the individual's wellbeing could be monitored, and behaviour issues avoided. This would be a minor, time-saving, feature that would make a significant difference to teacher effectiveness and that child's experience that day. It also has the potential to free up school leaders from dealing with escalating behaviour issues. Future-fit MIS will ease communications, revolutionise report-writing, and create simple audit trails across teams to relieve time pressures and increase effectiveness.

Ultimately, school business managers and leaders want MIS software that facilitates data analysis - there is so much potential in the data held by schools that appears to be going untapped at the moment. The government has an insatiable desire for more and more data points, and schools need a management information system which can provide all that is statutorily required in one simple bundle. With training demands, and the usability of the data interface, singled out by respondents as important issues, such a management system also needs to be intuitive, using a single design language that can be easily explained, understood and used by a range of personnel.

CONCLUSION

It is clear that data is only going to grow in importance in all sectors of society, not just schools. In business, effective Management Information Systems allow them to make effective decisions on operational issues, collect relevant data on customers and to relate that data to specific projects. It facilitates collaboration and communication, and enables in-house reporting to investors and the government. If an MIS is deployed effectively in an organisation, there are also front-line benefits for employees, as they are able to do their jobs more effectively.

What is valid for business is relevant for school and MAT business managers and leaders. The workings of a school may be more complex - encompassing multi-stakeholder communication and holistic student welfare, and more - but this only further increases the argument for having the right MIS in place because, while the right MIS might feel like a costly investment, the right system will save time and money in the longer term, as well as improving outcomes for students and their parents. As David Ingram writes for Chron, 'Weigh the costs of an MIS against the potential benefits before implementing the tool'.

A prime example of where schools need to assess time and effectiveness when using MIS software is timetabling, which is a significant burden. There are challenges here because of the lack of integration in software, which was reported in the survey as a significant concern. Compatible timetabling within a school's MIS which works with a multitude of timetable systems would be a significant return on investment in the software.

However, the success of MIS needs a broader range of features than timetabling solutions alone; budgets are so tight that one piece of technology needs to cover many, if not all, areas of need. A successful MIS, that is future-fit, will include financial modules too and features that allow for easy communication with parents. Better still, if good pedagogical practice can be deployed with, for example, students' comments on their reports integrated, then MIS can be genuine educational technology.

In short, the MIS software of the future needs to aspire to be everything to everyone in schools and MATs - a series of integrated modules that serve the specific requirements within different teams is going to be the most agile and flexible model, and schools will welcome such a product with open arms.

Budgets are so tight
that one piece of
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