



# TECHNOLOGY IN CHILDREN'S SERVICES

Children's services are increasingly using technology to boost information sharing among professionals and across agency and geographical boundaries to get help to vulnerable children and families earlier



RAWPIXEL.COM/ADOBESTOCK

**C**hildren's services are urgently looking to technology to tackle emerging issues, from sharing safeguarding intelligence across geographical and agency boundaries to making better use of dwindling resources.

The challenge for systems providers and councils is to look to technology to both drive change and innovation in tackling children's services struggles and to support and enhance existing ways of working.

Development of systems that support the work of children's services has largely evolved organically, around meeting the needs of individual councils. Much of this work has focused on improving the sharing of information between organisations working with children and families, and the quality and analysis of the data collected.

Increasingly advanced algorithms are being used to crunch large volumes of data to predict children most at risk of poor outcomes, and inform practitioners and commissioners on

what interventions are most effective. This offers huge potential for developing more preventative practice, but has prompted ethical concerns about the amount of information public agencies are collecting on children and families and the security of this.

*CYP Now's* special report on technology in children's services assesses recent research on how technology is changing the way professionals work, identifies the key policies shaping national and local initiatives, and highlights four examples of innovative practice. »

# Policy context

Rising demand for children's services and increasing expectations of what they should deliver – while coming at a time when resources are shrinking – has created a necessity among local authorities to find new ways of reaching more people at less cost. It is against this backdrop that children's services leaders and commissioners have looked to technology to help find more efficient and effective ways of working.

Information, communication and technology (ICT) systems have been a feature of children and family services for more than two decades, but in recent years the emphasis has shifted from one of capturing, collecting and reporting information for a single agency, to that of analysing and sharing multiple sets of "big data" across a range of organisations that have a stake in children's lives. This integration of multiple organisations' information is happening in many aspects of services for children and families, from child protection to education support, and is providing frontline professionals with a much more comprehensive picture of the children and young people receiving services.

## Information sharing

According to a report by the Institute of Public Care (IPC) at Oxford Brookes University, a key driver for this change in approach is the move to personalised care.

"In order to support the delivery of personalised care, information needs to be joined up around an individual, so that the professionals involved in the care can see relevant information from the 'whole' person's record and not just an organisational view," the report states.

A local authority self-assessment carried out for the IPC report found 90 per cent involved in some form of information sharing initiative across children or adult services (see expert view).

Health services have led the way in developing integrated care records, but councils are increasingly working with other public sector bodies to incorporate social care information. For example, the Connecting Care programme collates information from health organisations across Bristol, North Somerset and South Gloucestershire into one system. Recently, children's social care information has been incorporated so that

health and safeguarding professionals from the three councils and NHS bodies can get a more rounded view of a child's wellbeing (see practice example, p35).

In addition to integrating multiple sources of data, ICT systems are being used to improve the handling of referrals between different agencies. For example, Cumbria Council's Strata system enables NHS trusts to automatically make referrals to children's social care, cutting time and cost.

A similar approach has been developed in Kent for handling the transfer of information about child deaths between police and the local safeguarding children board (LSCB). The eCDOP system is not only proving to be a more efficient way of processing information but is also helping Kent LSCB to identify behaviour trends earlier that can be addressed to improve child safety (see practice example, p36).

## Predictive government

In its 2016 report, *Datavores of Local Government*, Nesta highlights moves by local government to use data analysis to predict "events", such as child abuse, truancy and house fires.

"These insights equip local government with more ability to take a preventative approach, putting in place interventions to try and stop problems rather than providing costly services in response," it states.

According to the report, using powerful algorithms – processes that enable computers to quickly sift, sort and analyse sets of data – is particularly useful for children's services "because much of the work of commissioners or frontline professionals involves complex decision-making with lots of information".

Algorithms use historic data to establish patterns, offering "predictive insight for new decisions based on the presence and weight of certain variables", explains Nesta.

The use of algorithms to analyse different sets of data is being particularly seen in children's social care. Scenarios in which this is being used include:

- Predicting the level of future risk for a child that becomes known to children's services. This would typically involve the use of regression whereby data is given a real value rather than a label. The algorithm must predict values for new data, based on observations of relationships with previous data.
- Identify common groupings of needs and characteristics within the population of families known to children's social care. This involves clustering, whereby data is

## EXPERT VIEW CHALLENGES POSED BY TECHNOLOGY



**Richard Selwyn, member of the Association of Directors of Children's Services resources and sustainability policy committee**

I recently read an article quoting Hackney Council and the analytics company Xantura describing the potential for technology to help children's social care services. The response on social media was one of genuine and strong concern in the face of a digital revolution. Here are four key themes that are emerging and need to be addressed:

- **Ethics** – Will combining data from different government databases significantly improve our picture of families, and if people knew would they try to stop it because of concerns it is too intrusive? This is about ethical use of data and is, to an extent, addressed by the forthcoming General Data Protection Regulation from 25 May that requires explicit consent about the use of data and who it will be shared with. There is more we need to do to test the ethics and what is socially acceptable, although families tend to be more willing to share data now. Establishing an ethics committee, including local residents, might be a helpful way to test this.

- **Accuracy** – Will the algorithms used to detect future need be accurate enough to be useful, and can a computer really capture the complexity and emotion of family life? These are the key questions being tested by the public sector and it's fair to say the application of predictive analytics is immature. Early evaluations and international evidence are promising, but we've yet to see this applied to the point of significantly changing children's services.
- **Inequality** – There is concern that algorithms promote inequality. Lazy analytics might single out poverty, race or disabilities and treat these individuals unfairly, for example confusing being poor with poor parenting; or statistics that flag the disadvantaged more, simply because we have more data about these families. How will safeguards be built into these emerging models?
- **Protectionism** – How does change affect the workforce? It appears that professionals and the royal colleges can sometimes be more resistant to using data and technology than the families they work with. If we look at the change affecting other industries, it is clear that roles are likely to shift, but our services are relationship based, and I remain optimistic that the main impact of technology will be more time for practitioners to help children, young people and families.

## EXPERT VIEW WHAT DO CHILDREN'S PRACTITIONERS NEED FROM DIGITAL TECHNOLOGY?



**Jackie Daru, principal consultant, Institute for Public Care, Oxford Brookes University**

Children's services practitioners today need to be able to collaborate across agencies, working with others to ensure a joined-up approach to planning and providing care. It is vital to share information and decisions about care and support. Systems should support this by bringing together relevant data and making this available to those who need to see it, saving time and energy across the whole system. Systems should be easy to access and use, with an intuitive user interface, meeting the needs of practitioners.

New legislation such as the General Data Protection Regulation which comes into force

from 25 May, can make the difficult task of sharing seem insurmountable. Permission of partners needs to be sought for both primary use (i.e. case management) and secondary use (analysis of the collated data e.g. for planning purposes). However, more and more councils are overcoming these difficulties to achieve some excellent systems (see Connecting Care practice example, p35)

In the future, we hope to see shared online care records which are not only accessible by professionals, but also where families, and children and young people can access and contribute to their shared care record. This would be of particular assistance to families with disabled children, for whom retelling their story can be a frequent and frustrating occurrence. As citizens we have been used to accessing our own bank/utility/store accounts online some time, but there is little

evidence of technology being used in this way in social care. However, we are starting to see moves in this direction – for example this is part of the longer term plans for the Leeds Shared Care Record.

How can we ensure that this and other excellent work is shared around the country despite financial constraints on councils?

Leadership at a local level is a key enabler: this is evident in places where information is being shared effectively between agencies and the commitment of senior leaders is a vital factor. As is the sharing of good practice and the development of toolkits and guidance through national bodies such as the Local Government Association.

Let's not also forget the support practitioners need – starting with this everything else should then follow. Support for them is the catalyst for change.

unlabelled but can be divided into groups based on similarity within the data. The algorithm tries to find the hidden structure of the data, representing patterns or groupings.

- Predicting which families are likely to respond best to a particular intervention. This involves classification, whereby labelled data is used by the algorithm to guess the label to attach to new unlabelled data. The algorithm models the differences and similarities between groups.

Data analysis expert Xantura is working with three councils to piece together data from different organisations to flag up emerging safeguarding concerns about children and families (see practice example, p36). Other systems are taking this approach even further by collating and analysing demographic data to predict children likely to be most at risk of suffering abuse and neglect.

It is not just children's social care where ICT-based solutions are being developed. Mapping anticipated need is also being used by public sector agencies to model future demand for services. The London Assembly has analysed population data to calculate the number of childcare and school places it will need over the next 40 years so that it can plan for where provision will be needed.

Technology and data specialist CACI is working with a variety of public sector bodies to develop modelling capability.

Marc Radley, strategic director for CACI's children and young people division, says this

enables it to model different scenarios, such as increasing certain types of interventions or removing whole services.

"We are at the stage where we can provide instant visibility of these changes through dashboards designed for access by non-technical staff," he explains. "Instead of reliance on analysts, built in time-lags and loss of context, there is now instant visibility. I am looking forward to seeing commissioning groups more adept at problem-solving and delivery, because they can see the full impact of local resourcing."

### Better use of data

Finding the resources to invest in new IT infrastructure and software can be a challenge



Data analysis is informing careers advice in Doncaster

for cash-strapped children's services departments. Since its launch in 2014, the Children's Social Care Innovation Programme has made a significant contribution to building capacity for the better use of data.

An evaluation of the programme's impact found that some of the 57 projects funded in the first round had improved the way they used data. For example, Newcastle Council's Family Insights project saw two data analysts employed supporting practitioners to identify effective systemic practice that could potentially improve the quality of services for families.

Doncaster Council is developing a new careers, employment and guidance service that is underpinned by data analysis. By utilising and understanding existing data sets, the council expects to be able to identify future skills and employment gaps, incentivise residents to undertake training to meet those skills needs, and connect schools and colleges with employers and businesses.

The council has mapped its current careers advice service, highlighting how and where it makes use of existing data and identifying areas where it needs more data. It also plans to bring together careers and teaching professionals with analysts and policy officers to design an improved careers service based on a model dataset.

### Challenges and pitfalls

The IPC report identifies three key challenges to the wider adoption of technology-based approaches, including: »

## 7 TIPS FOR MAKING MORE OF DATA

When looking for examples of innovation in how councils use data, Nesta identified some of the factors that enable data use to lead to tangible improvements. Based on this, it produced seven recommendations for how councils can get more out of the data they hold:

1. Take a problem-oriented mindset to working with data - data is not in and of itself useful, but using data analysis to test hypotheses or solve problems can ensure value is created.
2. Integrate data into a data warehouse to enable deeper analysis and use - linking data creates a fuller view of issues or individuals, making problem solving or pattern spotting easier.
3. Enable data sharing through use of case-oriented information governance protocols - being specific about the circumstances and purposes for which data can be shared makes it easier to unlock data and integrate it.
4. Support the use of data from the top - senior managers and politicians can create a data-oriented culture through asking for data as part of decision and policymaking processes.
5. Invest in the data science capacity needed to perform analysis and integrate large data sets - data work increasingly requires data scientists and programmers who are currently rare in the local government workforce.
6. Take an agile approach to working with data - rapid prototyping, testing and iteration improves the quality of analysis and tools, and helps build momentum.
7. Ensure that infrastructure enables integration of data and analysis - without high-speed broadband, data storage options and the right software, data approaches can be held back.

Source: *Datavores of Local Government*, Nesta, July 2016



Put in place the right support for data approaches



PAVEL LOSEVSKY/ADOBE STOCK

Tracking the right data throughout children's lives is key to shaping services that respond to complex needs

- People – the digital self-assessment found that just a third of councils said they had adequate human and financial resources for technology implementation.
- Process – it says challenges over information sharing frequently stem from a lack of clarity over what can and cannot be shared across partner organisations.
- Technology – councils highlighted issues over compatibility between different systems. The digital self-assessment found that just 41 per cent of councils said their key adult and children's systems were sufficiently compatible.

In addition, there are rising concerns among some civil liberties groups about how data is used and stored by public agencies, and the security of the systems councils and other bodies are using. Last year, the NHS was victim to a cyber attack that crippled systems at 16 NHS trusts and prompted experts to warn about the security of sensitive patient information. Others are concerned about the implications of making intervention decisions based on predictive analytics (see expert view).

Meanwhile, the introduction of the General Data Protection Regulation (GDPR) on 25 May is likely to change how councils and other child protection bodies share data with each other. To share information under GDPR, organisations should seek informed consent from people over 16, while parental consent should be gained for under-16s. The consent requirement is likely to be waived when information needs to be shared for child protection purposes, but children's services will need to be ready to explain to children and parents who may access their data and why.

### Emerging trends

Childhood trauma is an area that will continue to see significant attention, explains CACI's Radley.

"Research from neuroscientists is shedding more light on the impact of neurodisability as children and young people develop from early years," he says. "Understanding the right data to track, across schools and youth justice services, will be crucial to responding to some of the more complex trends in children's services, and reducing societal costs."

Radley adds that children's services are looking to return to previously under-used aspects of data, such as education admissions platforms being used to track aspects of pupil backgrounds, enabling the right inclusive support.

"This kind of creativity will ensure better outcomes for children, as well as the safety of the community," he adds. ■

By Derren Hayes

### FURTHER READING

[Informing Better Decisions Through the Use of Data in Children's Social Care](#), Judy Sebba, Nicki Luke, Rees Centre University of Oxford, December 2017

[Transforming Local Public Services Using Technology and Digital Tools](#), LGA, November 2017

[Transforming Social Care Through the Use of Information and Technology](#), IPC Oxford Brookes University, November 2016

[Datavores of Local Government](#), Nesta, July 2016

[Pillars and Foundations](#), Richard Selwyn, March 2016