

Court Data Innovation in Hamilton County

2023 – 2024

Prepared as part of the Judicial Innovation Fellowship at Georgetown University

Table of Contents

Executive Summary	3
Recommendations	4
About the Project	5
Acknowledgements	6
Methodology	7
The Current Culture of Data Innovation in Hamilton County	8 - 10
A Snapshot of County Data	11 - 12
Error Checking and System Access	13 - 14
The Case for Documentation	15 - 16
Cross-Unit Communication	17 - 18
Easy Fixes vs. Major Lifts	19 - 20
County Data Outside the County	21 - 22
Working with Vendors	23 - 26
Looking Towards the Future	27

Executive Summary

The report to follow details key recommendations for data improvement and technology innovation developed after a year-long collaboration between Hamilton County and the Judicial Innovation Fellowship at Georgetown University. Thanks to a significant universe of county buy-in, data was collected via ethnographic observation of court functions, analysis of county data systems, and through over 40 in-depth interviews and site visits. The report narratively describes 6 major themes and provides examples of data wins and potential for improvement within those themes. Key recommendations are given for each theme.

The overarching tone of these recommendations advocate for a common set of objectives in improving county data systems, technology innovations, and general data practices. First, the creation of strong reliable policies about error resolution, data permissions, and data system training. Second, the report makes a case for increasing the amount of data and process documentation within county units. Third, it stresses the importance of two-way systems of communication around data issues and feature development. Fourth, it differentiates between user experience improvements and structural changes, recommending a UX refresh of the Criminal Justice User System (CJUS) and investment in back-end data infrastructure. Fifth, it describes use of county data outside the county and county-adjacent experiences. And sixth, it provides thematic analysis of positive and negative experiences with external product vendors and makes recommendations for future vendor engagement.

In addition to making suggestions about use of currently held internal resources, the report recommends two external interventions: 1) a short-term user interface refresh of CJUS and 2) instituting a permanent employee position for a Data Systems Specialist who can serve as a central communication and policy node taking a systems approach to Hamilton County data.



Recommendations

The report to follow narratively lays out a series of recommendations, providing analyses of specific problems and pathways toward solutions. Those recommendations are also listed here, separated by themes listed in the report. A global recommendation in this report is the establishing of a Data Systems Specialist to help lead many of these efforts and ensure a cross-process perspective in ensuring data compliance, data usability, and data efficiency. The specific utility is outlined within the thematic recommendations

Error Checking and System Access

- Establish formal error resolution policies and permission lists to identify errors in the data
- Conduct an audit of county data access and establish a future thinking policy for who has access to what data products
- Hire a Data Systems Specialist to lead these efforts

The Case for Documentation

- Build documentation of training procedures, databases, data structures, and policies, considering how these work alongside currently used HR and policy management software
- Collect documentation these in a repository or entrust to a Data Systems Specialist

Cross-Unit Communication

- Appoint individuals within units as liaisons with IT
- Develop a more actionable and responsive IT ticketing system
- Make changes to policies surrounding live feature deployment and on call support
- Hire a Data Systems Specialist to share compliance information

Easy Fixes vs. Major Lifts

- CJUS UX refresh to update the usability of county data products
- Updates to forms and expired documents
- Longevity-oriented improvements to server maintenance and CJUS re-factoring

County Data Outside the County

- Systematically track who uses county data resources
- Alert municipal courts to pathways for requesting updates/changes

Working with Vendors

- Make changes to bidding processes that require notification and feedback solicitation from other units affected by vendor changes
- Hire a Data Systems Specialist to interface with all new acquisitions

About the Project

This report is one of the results of a year-long collaboration between the Hamilton County Courts and the Judicial Innovation Fellowship (JIF) at Georgetown University Law Center. Made possible with generous support from the New Venture Fund, Schmidt Futures, the Ford Foundation, State Justice Institute, and The Pew Charitable Trusts, JIF seeks to develop innovative projects that pair technology experts with local courts to conduct community engaged research and build practical solutions. The Judicial Innovation Fellowship is novel in the civic tech space – taking on 21st century court challenges by embedding technologists in courts directly. JIF won the American Legal Technology Award in the ‘Courts’ category in 2023.

Competing with local and state courts around the country, Hamilton County was one of only three sites chosen for JIF projects in 2023 – 2024. Notably, Hamilton County was the only county-level court selected. Led by Judge Alexander McVeagh and Economic and Community Development Director Alexa LeBoeuf, Hamilton County also proposed a project that differed from the other JIF projects in that it prioritizes data systems as a pathway both to the efficient functioning of courts and to delivering services to the community. The report that follows distills the main findings from a year-long audit and analysis of county data systems, the roles of individuals that create that data, and the perspectives of individuals that use that data.

Importantly, while this report takes on the tone of making strategic short and long-term recommendations, it is not only a report about problems. Instead, it is also a report about successes and potential successes that already exist within Hamilton County and that should be recognized as such.

About the Author

Kat Albrecht is an assistant professor at Georgia State University in the Andrew Young School of Policy Studies where she researches and teaches in the Criminal Justice and Criminology Department. She holds a PhD in sociology from Northwestern University and a JD from the Northwestern University Pritzker School of Law. She is also the Judicial Innovation Fellow matched with Hamilton County.

Acknowledgements

This project would not have been possible without the support and participation of Hamilton County and the individuals who work in the county and with groups that interact with the county. What was theorized as a project about data is actually a project about people. The individuals and offices below were instrumental in the projects' success.

Data Innovation Steering Committee

The Data Innovation Steering Committee was comprised of department leads and key data users from across the county. The committee met monthly and explored different data/technology pain points and solutions throughout the year.

Data Innovation Advisory Committee

The Data Innovation Advisory Committee met quarterly, giving reflexive feedback on project progress over the course of the year and working to diagnose other ongoing data/technology concerns within the county.

A Special Thank You to Participants Departments, Agencies, and Individuals

The County Mayor's Office
The District Attorney's Office
General Sessions Judges
General Sessions Judges Office
District Court Judges
Hamilton County Sheriff's Office
Hamilton County IT
Recovery Court Staff
Juvenile Court Judges, Clerk, and Technologists
Court Judges, Clerk, and Technologists
Criminal Court Clerk
Civil Court Clerk
East Ridge Municipal Court
Soddy-Daisy Municipal Court
Red Bank Municipal Court
Signal Mountain Municipal Court
Collegedale Municipal Court
Chattanooga Police Department
Legal Aid of East Tennessee
The Family Justice Center
Economic and Community Development Director

....and many others.

Methodology

The project was initiated with a statement of work co-written between Hamilton County and the Judicial Innovation Fellowship (JIF) laying out the three primary phases of the project and assigning objectives to a hypothetical JIF Fellow:¹

Phase 1: The fellow will begin by researching the county court's data systems and data culture

Phase 2: The fellow will synthesize their research and begin formulating, sharing, and iterating potential recommendations

Phase 3: Document research and recommendations for future work and implementation. Provide handoff training to permanent court staff

Following the creation of the project aims and outcomes, JIF and Hamilton County conducted a national hiring process to select a JIF fellow that would be embedded in the Hamilton County Courts to carry out the project work. The fellow and author herein, Dr. Kat Albrecht, undertook these research aims through ethnographic observation of court operations, analysis of different data portals and back-end infrastructures, and via a series of over 40 in-depth interviews and site visits with data users and creators across Hamilton County.

Albrecht condensed her field notes, observations, and analysis for regular presentation and engagement with stakeholders in Hamilton County. This was done both informally and formally, with formal presentations occurring through two primary mechanisms: The Data Innovation Steering Committee and The Data Innovation Advisory Committee. The steering committee met monthly, documenting ongoing issues and opportunities during the project lifespan and acting as an expert user group most familiar with different facets of data and technology needs within the county. The advisory committee met quarterly, acting as a larger body offering feedback and offering news pathways for investigation. This report is a culmination of all these processes and data collections.

¹ Judicial Innovation Fellowship. 2023. Hamilton County Statement of Work
https://docs.google.com/document/d/1F-vVUWN5k4iq0o09wgpE7PVUBH6NDZS_reD-UC_VUZ8/edit#heading=h.y18tcbox4oy1

The Current Culture of Data Innovation in Hamilton County

Canonically, we do not look to the courts as innovators in data analytics and technology use.² The general terrain of research on court technology and data production describes courts as disadvantaged by archaic systems, using processes that are not conducive to technological innovations, and as limited by budgets that were not originally conceptualized as accommodating expensive data infrastructure systems.³ The result of this is a grimly painted picture of courts in their position as stewards of public data without the resources or internal buy-in to build efficient operable data systems.⁴ What's more, court data itself is critiqued as inaccurate, inaccessible, and inadequate.⁵

This is more the pity, since these data systems could go beyond the storage of internal information and transform themselves into useful repositories of information that help make the justice process more efficient and better able to serve community members. This latter aim is especially important as the data inside court systems is not just data about court functioning but is also data about communities and the people who live in them.

Compared to the research literature, this report starts in an unusual place because the data climate in Hamilton County breaks with the traditional narrative of doom and gloom surrounding court data infrastructure innovation. While it is true that a number of areas for improvement and future investment were uncovered by this research process, it is also true that this work revealed substantial buy-in for data innovation and illustrated existing successes within the County that should not be overlooked.

The large number of participants in this work is indicative of buy-in across the county supporting data and technology innovation. Many court-based interventions take place in one part of a court system, limiting their ability to be effective since they do not understand and intervene on other parts of the larger system at the same time.⁶ Instead, involvement in *this* project included offices and representatives across the court and extending beyond court workers. Participating offices and agencies included {import: list}. The wide-ranging

² Nancy Scola. 2015. Courts 'Choose' to Lag Behind on Tech says Chief Justice Roberts. Washington Post.

³ Johnstone, Quintin. "New York State Courts: Their Structure, Administration and Reform Possibilities." New York Law School Law Review 43 (1999), Berkson, Larry. "Unified Court Systems: A Ranking of the States." Justice System Journal 3 (1977).

⁴ Jennifer A. Tallon, Olivia Dana, and Elise Jensen. 2022. The Contradictions of Violence: How Prosecutors Think About the Biggest Challenge to Reform Center for Court Innovation.

⁵ Albrecht, Kat, and Kaitlyn Filip. "Public Records Aren't Public: Systemic Barriers to Measuring Court Functioning & Equity." Journal of Criminal Law & Criminology 113 (2023); David Schwartz, Kat Albrecht, Adam Pah, Christopher Cotropia, Amy Kristin Sanders, Sarath Sanga, Charlotte S. Alexander, Luis Amaral, Zachary Clopton, Annie Tucker, Tom Gaylord, Scott Daniel, and Nathan Dahlberg. 2024. The SCALES Project: Making Federal Court Records Free. Northwestern University Law Review. Vol 119, Issue 1.

⁶ Albrecht, Kat, Maria Hawilo, Thomas F. Geraghty, and Meredith Martin Rountree. "Justice Delayed: The Complex System of Delays in Criminal Court." Loyola University of Chicago Law Journal 53 (2021).

support for this initiative strongly suggests one very important thing: the right time for innovation and data investment is right now.

The timeliness of data innovation in Hamilton County is not merely a found in the motivation for this research, but rather is also supported by key initiatives already in progress across the County. Two of particular note are the mayoral commitment to the Hamilton Counted Initiative and the complete integration of E-filing in the Juvenile Court.

Hamilton Counted is an information-sharing initiative instituted by Mayor Weston Wamp and led by Senior Data Analyst Jennifer Baggett to foster data transparency and data accountability for challenges facing Hamilton County residents.⁷ Launched in 2023, Hamilton Counted reports will continue to be released quarterly, aggregating and analyzing diverse streams of data on crime, victim services, substance use, homelessness, and social services with expansion into additional topics projected for the future.⁸ Hamilton Counted represents an important step forward in data transparency – even if the data portrays difficult realities.

Similarly, the success of the Juvenile Court becoming only the second court in the state of Tennessee to be approved for e-Filing demonstrates that Hamilton County does not just embrace innovation – it leads it. Led by Juvenile Court Clerk Gary Behler and Judge Robert Philyaw, the juvenile court staff and county developer Darren Combs navigated uncharted waters as they dealt with opaque application criteria to institute a homegrown customized e-Filing system that was readily compliant with all required reporting in combination with the mass digitization of over 8.6 million pages of court records. Especially important was the level of buy-in and participation of all of the staff members at the Juvenile Court. The 18-month process of digitizing historic court records was spearheaded by Project Manager Rhonda Wheeler and Technology Coordinator Kristie McGown, who enacted quality assurance and oversight measures in working with the retained vendor. The result of this multi-year process is a fully integrated digital clerk's office and court, where even self-represented litigants can e-File.

The collaboration between the County IT Department and the Juvenile Court is illustrative of the possibilities borne out of local, customizable development. It also illustrates that the developer core within Hamilton County's IT team is creating internal data products that would normally be extremely expensive. In this case, Clerk Behler reported that even preliminary estimates for just building the e-Filing system from external vendors came in at hundreds of thousands of dollars. Instead, the County IT Department built it in-house with an infrastructure that is designed to accommodate additional units who might transition to

⁷ Local News 3, Hamilton County Mayor's Office Says Hamilton Counted Reports will Bring Accountability Through Data (May 11, 2023) https://www.local3news.com/local-news/hamilton-county-mayors-office-says-hamilton-counted-reports-will-bring-accountability-through-data/article_a6d41640-f012-11ed-a647-c794fd7637df.html

⁸A sample Hamilton Counted Report is available here:
<https://www.hamiltontn.gov/PDF/Mayor/Media/Hamilton%20Counted%202023%20Year%20End%20Report.pdf>

e-Filing. Importantly, internal infrastructure is not just advantageous for future expansion and customization, it can also be a significant cost saving measure, exemplified in the Juvenile Court use case.

This effort was recognized with the County Technical Assistance Service (CTAS) County Government Consultant Gary Hayes commenting that, “To the best of our knowledge the Hamilton County Juvenile Clerk’s office is the only clerk’s office in the state of Tennessee that utilizes a fully electronic work flow process from a records management standpoint, where all of the case files (paper records) are now scanned and can be used by the judge and court staff through technology in the courtroom.”

Both of these successes are illustrative of a larger pattern within Hamilton County: where motivated individuals are designing systems and proposing innovations beyond the traditional scope of their positions that are helping Hamilton County update its data systems.

A Snapshot of County Data Systems

Data infrastructure innovation is extremely difficult because of the highly interconnected data reality within systems. The county data system at the heart of this report is the Criminal Justice User System (CJUS). CJUS is a homegrown data system developed by long-time head of IT Bart McKinney in the early 2000s. When CJUS was originally created, the world of database technology and the demands of CJUS were very different than what they are today. Over time, CJUS has grown to weave various types of police, jail, fines and fees, and court data together and has been called into service by the county, municipal courts, crime analysts, and the juvenile court.

Described by CJUS's founder as "adding additions to a house over and over" and another county employee as "Grandmas wallpaper that you keep papering on top of" CJUS accomplishes a tremendous amount of functions within a limited user interface.⁹ CJUS is supported by a team of 4 developers. While 4 developers is more than a lot of county or smaller court systems have, it is a fantastically small amount of developers for the level of feature development required of CJUS across Hamilton County. Paying for the creation and maintenance of an external system as varied as CJUS would rapidly outpace current developer salaries.

Importantly, data in the county is all connected together, even if individuals in one unit virtually never contact individuals in another unit directly. When there is little communication between units, individuals operating within each individual unit are left to make decisions about how to log and use data that might look odd to the next data user, who is using that data in a very different context.

For example, deputies in the jail must enter data into CJUS to help a case record progress. When the deputy receives a capias to enter, there may not yet be a judge name and courtroom attached to the case. However, the data system is set up without a neutral criminal court designator. That means deputies still have to select a division, even if one has not been assigned yet. Since they have to choose something, division one is a popular choice. This makes for a data record where sometimes a selection of 'division one' means division one but sometimes it does not. And then the data moves along to the next unit.

As data moves across units that are using it for slightly different purposes, system linkages become crucial to the integrity of the data. Those system linkages are fashioned together into a larger data infrastructure that serves as the record keeping backbone for data storage. CJUS accomplishes this by having various CJUS modules, where units have more user permissions and can enter their own data, and then universal CJUS that ties things

⁹ A user interface is what you see when you go onto a website or to a data portal and interact with the website

together. Undergirding this system is a myriad of structural features like identifiers and field linkages that allow the data to be connected together. In other words, there is a lot more going on inside CJUS than is apparent from the user interface alone.

Hamilton County also has multiple tiers of data users to consider when thinking about the data in context. There are data creators: like law enforcement officers and clerks who are entering case information into CJUS. There are data users: like bench clerks, crime analysts, and unit chiefs who are querying data live, running reports, and preparing statements and intelligence briefs using CJUS data. Then there are downstream potential users, like community groups, Legal Aid, and members of the public that rely on data that comes out of CJUS or other county data systems like Tennessee CaseFinder. All of these data creators and data users have different pain points and feature suggestions for how county data systems can be more responsive to what they need. This report attempts to balance these perspectives, but also acknowledges that more work should be done in the future to engage with downstream users about how county data systems can better serve the public good.

While this report makes many recommendations related to CJUS, it is not only a report about CJUS. Other data systems and tools engage with CJUS and interact with other elements of the county that are woven throughout this report. Importantly, there are also other data systems and external vendors who have data products that operate within the county and on which community groups and Legal Aid rely for information. The recommendations made here also apply usefully to those data sources and structures.

Error Checking and System Access

Hamilton County does not have sufficient and uniform procedures for correcting data errors and controlling system access. This is a system-wide issue, with policy changes and practical changes needed within and across units.

Currently the county does do a good job of limiting who can make deletion-type changes in county products like CJUS and in recording the meta-details of who is adding information to the various CJUS modules.

For example, when a bench clerk logs in with their credentials the system attaches their user account to the data they are adding. If the clerk mistakenly schedules a court date, the system does not let them delete that data and instead requires them to reschedule it. This can make the log of dates look a little strange – since it seems like cases are being inconsequentially rescheduled, but ultimately it preserves data instead of deleting it and makes it easier to piece things back together down the line.

However, where a non-deletion-based system is good practice for systems with many users, someone should have access to make changes and fix errors. Importantly, everyone should know who that person is and the process by which an error can be reported.

One non-deletion problem that reoccurs with frequency within the county is duplicated SPN identification numbers. When an arrest comes through the Annex in the Clerk's Office, the arresting officer connects with the clerk on video call and is able to confirm and initiate a record in CJUS. Sometimes the clerk finds that there are multiple SPN numbers already for what appears to be the same individual. The clerk themselves does not have the access level required to condense these records. Instead, they have to decide which existing SPN number to attach the new charges to. Experienced clerks report that the best work around for this is to connect the new charges to the SPN number with most serious charges, since it's the most likely to be relevant to the new proceedings. From this point, "who would you contact about fixing an error with duplicated SPN numbers or wrong demographic data" became a consistent question asked of all interviewees across many different units and municipal courts. Answers included:

- Telling someone later revealed to no longer be employed at the County
- Deferring the problem to a different office
- Beginning an informal chain of contact that would require 3-4 individuals
- Resigning to the reality that the error will persist and any clarifying phone calls revealing the source of the error will just happen again later if needed

A constant thread among responses was that there was not a known formal process for data error resolution or agreement on who exactly has sufficient data access to fix errors. Rather error resolution was more usually adjudicated by a friendly phone call to someone else at the county who would be willing to help outside the boundaries of their normal duties. This is not a sustainable system for error identification or resolution.

Formal processes for error resolution should be documented, including what data system training or knowledge is necessary to train someone in error spotting. Additionally, there should be a regularly updated list detailing who has access permission to fix errors in the data. Error handling procedures should be applied to new data going forward, but also to data errors going back in time. Historical data errors cause problems for court employees who do not have the resources or pipelines to easily fix them. On one occasion observing a bench clerk who discovered a historical error, they sighed and said “Now that I’ve spotted it, I’m going to have to fix it.”

Of related concern is record-keeping surrounding data access rights and known employment status. On multiple occasions units explained their normal work process with asides like, “I’m not sure why I have access to this, but we use it” or “I still have access to this from my previous position.” In a detailed discussion of pain points with the Sheriff CJUS module, the Sheriff’s team noted that there are users in their access queue where they do not have the power to review their employment status to confirm that they are still employees.¹⁰ Eye-balling the list of active names, some other individuals were identified as no longer employed by the county, but still retaining data rights.

A concrete policy for ensuring appropriate data access permissions should be put in place and communicated to all units. It is recommended to solicit feedback from units on what data access they need before putting this policy into place. A centralized and well-documented list of these permissions should be maintained and updated.



Key Recommendations: Establish formal error resolution policies and permission lists, data audit of county data access, establish a policy for who has access to what and updating permissions lists, hire a Data Systems Specialist to lead these efforts

¹⁰ Forest Park Rangers have similar data access, but their hire is not controlled or confirmed with the Hamilton County Sheriff’s Office to regularly update data access permissions

The Case for Documentation

Across both county-built and externally supplied data sources there is a severe lack of documentation. With rapid feature development and long-tenured employees, daily documentation can quickly fall by the wayside. The result is that even important policies and databases are not documented in ways that preserve institutional knowledge and guard against errors and future problems.

A less conventional way of inspecting this problem is through one of Hamilton County's greatest strengths: its personnel. It is common to look across the county and see individuals with many years of service who have worked in different positions over time. As they move through different offices and roles, they bring with them the knowledge from other positions. This knowledge then shapes how units function.

For example, one county employee who moved between units expressed frustration that an efficiency-minded policy he had in place in his previous position had clearly been discontinued, which he recognized because of how his new position was being affected.

Another employee reported that everyone knows you cannot enter multiple arrests for a specific drug type into the system, since it messes things up and you have to take care of it through an alternative process. Very specific knowledge like this, be it true quirks of the data system or departmental lore that's distorted from its original purpose, is not possible to track long-term without documentation.

Having high-quality employees with long tenures does not sound like a problem, but it can introduce system reliance on a few key individuals and breed complacency with documenting systems and processes. Observation of daily court functions revealed that not all employees doing the same job were trained in the same way, sometimes with frustrating effects on their ability to engage with data systems.

In one case, while observing two court clerks entering payment information in completely different ways, a question from the researcher revealed that one of the clerks had never been told about a helpful feature in CJUS that auto-fills the price list. Instead, that clerk had been manually entering the data – a slower and more error-risky process, for many months.

Similarly, the audit of Sheriff CJUS with the Sheriff's team opened a conversation about reports, once requested by an unknown someone for an unknown something, that lived in a confusing and undocumented menu. While clicking through the reports, murmurs of 'oh that would be useful' came from the collective, about features that were already

implemented within the system but cannot be used efficiently because they are not documented and usable.

Documenting systems and processes is a thankless task. Much like other volume-centric tasks like data validation or paper digitization, the incremental toll of documentation feels insurmountable and unimportant when time sensitive things need to get done. However, long-term, the cumulative consequence of missing documentation is gaps in institutional knowledge that go unrecognized, unfilled, or filled by people who are not actually being compensated for that task.



Key Recommendations: Build norms for documentation of training procedures, databases, data structures, and policies, collect these in a repository or entrust to a Data Systems Specialist

Cross-Unit Communication

If you look beneath the surface of many of the challenges faced within and outside the county data universe, they come back to problems with communication. The existing communication systems across units do not formally exist in ways that are actionable and reliable. Communication voids persist across the county, but as they concern data, are felt painfully in relationships between different court units and the IT department.

Most units and individuals that engaged with this research reported feeling that their unit was the lowest priority on the list for IT feature development. While this is not actually literally possible, the silence felt by different offices and courts while they awaited IT contact are very real. Municipal courts reported hearing that ‘they will be getting CJUS’ and then being left in the dark for months. Offices and individuals reported submitting help tickets and features requests and never hearing anything back or worse, getting things back after the problem had been solved some other way. Ultimately, the solution for much of the silence was calling one or two specific people directly. Beyond being an unsustainable solution for a county of size, it is also a strategy that has proven to be not good enough in emergencies.

One particularly salient story of data communication failure was told from several different perspectives across many different units, but all the major features were identical:

One Friday late afternoon/evening a change went live in CJUS without notification or forewarning to the Sheriff’s office and the jail. The change ultimately shut down the data system such that the jail could not book anyone for multiple hours. Because it was after normal business hours, no one was immediately contactable to fix the problem. A direct phone call to one of the known ‘fix-it’ people found them justifiably off the clock and unable to immediately resolve the issue. By the time functionality was restored, multiple hours had passed and the compounding strain on a system already pushed to its limit led to days of problems for the jail.

A number of preventative measures should have been undertaken: not deploying untested live features at the end of workday, aligning the timing of feature pushes with the realities of possibly affected units, notifying possibly affected units of incoming changes, and having on call support for emergencies.

These emergency best practices are also transferable to non-emergencies. Many data users and creators expressed dissatisfaction with the current iteration of the county help ticketing system noting that it felt like shouting into the abyss without feedback on if/who/when their ticket would be resolved. Newly appointed head of IT, Greg Jackson, has made it a priority to improve the usefulness of the ticketing system and balance feature development requests in ways that already align with the recommendations in this report.

Other units around the county and municipalities use internal ticketing systems already, which provides ready pathways towards researching potential options.

The examples so far suggest that there is a one-way communication problem between different units and IT, but this is not the case. IT is also on the receiving end of a high volume of sometimes contradictory development requests without a means of deciding which requests from whom are the ones to prioritize first. IT developers are not court practitioners and often do not have the substantive legal knowledge that some users assume they have when making feature requests.

Different units can help alleviate this strain by appointing one representative within their unit to be the IT contact and by providing information about the level of important and urgency requirements of their requests. There are a number of units within already making use of this system, demonstrating its effectiveness. For example, the Hamilton County Sheriff's office has an internal triaging and allocation process in place that can serve as a helpful model for other units. This will help limit overlapping requests to IT and keep priorities more systematized, improvements that would work well alongside a stronger ticketing and triage system within IT. The Office of the Juvenile Court Clerk also utilizes the triage concept by having identified our Technology Coordinator as the single point of contact with the Hamilton County IT Department for any changes to our Juvenile Family And Child Tracking System (JFACTS) or any other requests for tech support from IT. This helps manage internal project lists and also helps IT avoid any confusion by eliminating requests from multiple sources.

County IT is also left out of key conversations that substantially impact their workload. When a county or county-adjacent unit changes data products or makes changes to their data process, county IT must respond to those changes. Similarly, other forms of data compliance and regulation that IT must accommodate have been communicated to IT extremely inefficiently.

For example, after the FBI instituted a multifactor identification requirement for data access that includes data that feeds in and out of FBI databases, IT was informed in April that they must comply with this change by October despite the change being made the previous October. A new role like a Data Systems Specialist would ensure that system-wide data compliance can be communicated across the system.



Key Recommendations: Appoint individuals within units as liaisons with IT, develop a more actionable and responsive IT ticketing system, changes to policies surrounding live feature deployment and on call support, a Data Systems Specialist to share compliance information

Easy Fixes vs. Structural Lifts

The single most requested technology improvement during this year of research was access to Microsoft 365. Upon further investigation, what this means is that county workers are looking for ways of making their day to day work tasks easier and more efficient. Technology upgrades like Microsoft 365, which as of this writing has begun being deployed in different parts of the county, and updated computers are a foundational component of technology innovation that should be regularly undertaken agnostic of administrations.

Most of the other data improvements suggested by data users and creators fell into two buckets: 1) visual or aesthetic changes and 2) structural changes. Visual or aesthetic changes focus on the user experience and the practicalities of data entry where structural changes pertain more to underlying data structure and system infrastructure issues.

CJUS has a very dated user interface. However, problems with the visuals of the interface go beyond it looking dated or having unpleasant colors and tangibly affect its usability. Currently, CJUS contains fonts and typefaces that are unreadable or otherwise unusable for their core function.

For example, when asked what they would change in CJUS, the number one single change from the Judge's Office is something that seems really simple. Every day, they print dozens of cases using the print screen button in CJUS. However, the print out comes out very small with a blurry case number that is almost impossible to read. Their one single biggest change in CJUS is making that case number bigger. This feedback never made it to IT, who when asked about it by this researcher, were surprised to hear that anyone actually uses the print screen button at all.

This illustrative example explains how a programmatically simple change can really matter. A remedy to this problem, and all of the other seemingly small problems like it, is a UX refresh of the CJUS interface. A UX redesign is a substantial lift, but one that only has to be undertaken once in the immediate future. A contractor UX designer/developer would be optimally positioned to take on this work. A funding proposal is currently underway to help make this recommendation more feasible.

The current iteration of CJUS contains a significant amount of dead functionality. Some of these are screens that are no longer applicable due to vendor changes, some are individual entry boxes that no one really fills in anymore, and there are a plethora of reports that no one runs. It is not necessary to delete things from the structure of CJUS, rather they could be hidden to help streamline and simplify data entry processes. This recommendation is also very compatible with a UX-redesign.

A more difficult universe of changes are the structural ones, which often require substantial work behind the scenes that is not immediately visible to different types of users. Returning briefly to the metaphor of CJUS as a house with many added on rooms, the reality of a 20-year-old system that has been called to new functionality is that it will eventually have to be refactored. Refactoring essentially means going into the structure and updating internal code without changing the exterior functionality. With a system as expansive as CJUS that is constantly adding new features, and only 4 developers, this is a substantial undertaking. However, it is a very worthy undertaking. Similarly, Hamilton County needs to invest in modern servers that handle the capacity of the current data systems. Servers are expensive and data migration is another big and necessary form of system maintenance that you *have* to do before you *need* to do it. Greg Jackson, Director of IT, is undertaking these necessary structural changes.

Other types of structural changes relate to disconnects between how things operate in courts vs. how they operate within data systems. As an alternative to the earlier example about Deputies having to enter court division assignments before they are actually assigned, we can consider the problem of fines and fees. In court, a litigant often stands before a judge who tells them emphatically: make sure you pay something on this case or they will take your driver's license. The litigant, who has deeply imperfect knowledge of the machinations of the legal system, might report to the Clerk's office to pay without knowing that payments are automatically applied to your oldest case. Entirely without meaning to, a disconnect between what judges say and what the data system does puts litigants and clerks in the position to solve these problems. Remedies to problems like these do not have to be data system remedies necessarily. Instead, communication-based or legal remedies, like as judge's orders indicating that a payment ought to apply to a more recent case, may ease the burden on the litigant and prevent data system confusions.



Key Recommendations: Improvements to UX, updates to forms and expired documents, longevity-oriented improvements in server maintenance and CJUS re-factoring

County Data Outside the County

Importantly, county data systems are not only used by county court workers. Downstream users, and even the general public, also have significant stakes in county data systems. Two examples are the Legal Aid and eviction resources groups that rely on data that comes out of Tennessee CaseFinder, and municipalities that use data from CJUS or even want to join the CJUS system themselves. Some of their data concerns are illustrated here, laying out potential future pathways for data application and system expansion.

Legal Aid and Eviction Resource Groups

Legal Aid and eviction resource groups reported relying on data coming out of Tennessee CaseFinder to make resource allocation decisions and provide better-quality advice to litigants. On one occasion, unusual activity in CaseFinder led the vendor to throttle it by requiring different search criteria. In this case, the change was only temporary, and the various units were able to communicate with each other. However, this incident should also serve as the impetus for policy consideration about how to better handle unusual engagement with the portal in the future such that it does not negatively affect Legal Aid and eviction resource groups that rely on it.

There are also additional data points or connected data resources that would be helpful to Legal Aid and eviction resources groups, like maintaining information about original bail decisions, original pre-trial diversions decisions (not replacing this with the outcome) and preserving attorney type and different pro se designators. Other groups like the Family Justice Center also rely on receiving data from county and city sources in order to efficiently provide resources to the community. These groups should not be struggling to get data to carry out their work, instead they should be included in conversations about data infrastructure and sustainable pipelines for receiving data should be prioritized.

Municipal Courts and Chattanooga Police Department

CJUS data is not just useful in the criminal justice functioning of the county but is also reported very useful to various municipalities. For example, crime analysts with the Chattanooga Police Department reported extensive use of CJUS particularly for their intelligence investigations.

Intentional site visits were conducted with municipal courts in East Ridge, Red Bank, Collegedale, Soddy-Daisy, and Signal Mountain to better understand how they interface with county data systems. Of the 5 courts, only East Ridge was using CJUS at the time of the observation. Of the other 4, 3 expressed a desire to transition to CJUS and Collegedale expressed satisfaction with their external vendor system.

East Ridge expressed general satisfaction with CJUS but did report that forms that they use within CJUS had not been updated and still listed the name of the former judge. They expressed that there was not a clear and obvious pathway to request an update and that they did not have access to do the update themselves. This differs from the system in place in juvenile court, where they are able to make some edits in-house. Whether the solution is allowing East Ridge to edit their own forms or making sure they are aware of and have access to a communication channel for updates, the requested form updates are not a difficult fix.

Municipalities waiting to move to CJUS cited a number of reasons to make the move including not wanting to rely on an external vendor with shifting contract terms, wanting to be united with the county system for ease of cross-checking and error resolution, and simply wanting a system that works better. The 3 municipalities awaiting a transition to CJUS expressed some trepidation about the unknown timeline of CJUS migration, and in the case of Soddy-Daisy who relies on grant funding, their ability to produce the analytics they need from CJUS for their grant reporting.



Key Recommendations: Systematically tracking who uses county data resources, alerting municipal courts to pathways for requesting updates/changes

Working with Vendors

Across Hamilton County there are a number of external vendors that provide different types of data integration services to the courts. Common vendor products include things like booking technologies, case management systems, law enforcement products and other data services often advertised as turn-key solutions. Across the county, there is mixed satisfaction with vendor acquired products with some units praising their external vendors and others expressing regrets. Three general themes differentiate successful vendor relationships from unsuccessful ones:

1. *Making sure all the relevant stakeholders are part of the new acquisition*
2. *Sufficient customization*
3. *Timely IT support*

Echoing themes of failures in cross-unit communication, many stories of frustrating vendor partnerships begin at the acquisition phase where not all of the individuals affected by new vendor acquisitions had a voice in the bidding and contracting process.

Currently affecting the Chattanooga Police Department, in the transition from different data systems, analysts with full knowledge of the departments record system and data records migration needs were not part of the original contract meetings. As a result, newly hired and promoted employees are entering contract negotiations in progress and finding that some key data needs were not addressed. The new contract, which is optioned at 9 levels of customization with increasing costs, has already moved substantially from the originally negotiated level to level 8+ and still cannot verify that they will be able to accomplish historic data migration from the departments' previous system, a known fail point with other contracts from that vendor.¹¹ This is not the only vendor whose injection into the county system has meant data loss or requiring inconvenient access to old data servers. In one of the county's busiest municipal courts, a vendor change means they cannot provide access to data from 2022. This does not just affect data use internal to the court, but also necessarily excludes their data from initiatives like Hamilton Counted.

Satisfaction with vendor relationships also depended significantly on customization and the financial flexibility different units have to ensure that systems are most relevant to what they need. This difference was most notable in differing satisfaction with Tyler Technologies Inc. case management products like Incode, which is used in multiple municipal courts. Where Collegedale expressed satisfaction with the product and its ability to handle their court functions, Signal Mountain was significantly less positive about its data system utility and noted that they only had access to the most basic version of the software they were

¹¹ Prieve, Judith, *Police Software Crashes Forced Dispatchers to Hand-Write Call Info, Slowed Responses*, The Mercury News (Jun. 23, 2023) <https://www.mercurynews.com/2023/06/16/police-software-crashes-forced-dispatchers-to-hand-write-call-info-slowed-responses/>

using. At Signal Mountain their software prevents them from even conducting all their court functions truly digitally, leading to recurring manual triage procedures.

The third differentiator between positive and negative relationships with external vendors was access to timely IT support and a consistent relationship with the vendor themselves. The Civil Court Clerk, who use an external vendor to run the civil-side case management system and run CaseFinder (the public user interface for civil court records) spoke highly of their ongoing relationship with their particular vendor representative and their history of receiving timely help and any needed features.

On the other hand, Red Bank municipal court reported a less positive experience with Tyler Technologies, where the original terms of the contract had afforded them more data autonomy and the ability to use their own data cloud. But it was too good to be true. After the vendor change, the system operated so slowly that they literally could not finish processing a modest court docket within their usual timelines. The vendor solution to this problem is paying for new cloud services outside of the original contract. Red Bank is in the midst of digitization innovation initiatives themselves, championed by Court Clerk Alicia Donahue, and has recently hired a Data and IT specialist who is equipped to challenge and dissect this contract, but for other units, this is not the case.

Case Study: Tyler Technologies

One of the largest court product vendors in the United States is Tyler Technologies, Inc. Tyler's Case Management System, Odyssey, is used in at least 600 counties in 21 different states.¹² A majority of the largest counties and cities in the United States use Tyler products. In an attempt to quantify any complaints or pending legal cases involving Tyler products, Georgetown law student Ashwin Ramaswami identified incidents where inmates were mistakenly released, where inmates were wrongfully not released, wrongful arrests, inefficient eCourts systems delaying court functioning, data breaches, security glitches leading to accidental publication of over 260,000 confidential attorney discipline records, and cancelled contracts and lawsuits due to sloppy coding. The legal status and ubiquity of Tyler products is of particular concern as the State of Tennessee contemplates the future of a unified case management system, where Tyler would almost assuredly be a prime contender for the contract.

A list of legal cases involving Tyler at the time of this writing includes:¹³

¹² Tyler Technologies, Tyler Technologies Provides Update on Odyssey Court Case Management Implementation in Shelby County, (Dec. 07, 2016) <https://investors.tylertech.com/news/news-details/2016/Tyler-Technologies-Provides-Update-on-Odyssey-Court-Case-Management-Implementation-in-Shelby-County-12-07-2016/default.aspx>

¹³ Law360 list of cases generated May 1, 2024

Winkler v. Harris et al
 Cobb County, Georgia v. Tyler Technologies, Inc.
 Seguin v. Tyler Technologies, Inc.
 Genesee County 9-1-1 Consortium v. Tyler Technologies, Incorporated
 CHAPLIN et al v. ROWE et al
 Seguin v. Rhode Island Department of Human Services et al
 Lewis v. Tyler Technologies
 Tyler Technologies, Inc. v. City of Jacksonville, Florida
 Tyler Technologies, Inc. v. New York State Department of Taxation and Finance et al
 Tyler Technologies, Inc. v. Lexington County, South Carolina
 John Roe 1 et al v. The State Bar of California et al
 Decapolis Systems, LLC v. MedSys Group, LLC et al
 Singh et al v. Tyler Technologies, Inc.
 Hogan v. Aspire Financial, Inc. et al
 Harrison v. Tyler Technologies, Inc.
 Chavez Law Offices P.A. v. Tyler Technologies, Inc.
 TYLER TECHNOLOGIES, INC. v. LEXUR ENTERPRISES INC. et al
 County of Anoka v. Tyler Technologies, Inc.
 Tyler Technologies, Inc. v. Multnomah County, Oregon
 County of Kern v. Tyler Technologies, Inc.
 County of Kern v. Tyler Technologies, Inc.
 Wright v. Tyler Technologies Inc
 Wright v. Tyler Technologies, Inc.
 Kohlmann v. Tyler Technologies, Inc.
 Kudatsky v. Tyler Technologies
 Akoloutheo, LLC v. Tyler Technologies, Inc.
 Greene v. Tyler Technologies, Inc.
 Sacramento Regional Public Safety Communications Center v. Tyler Technologies, Inc.
 Sacramento Regional Public Safety Communications Center v. Tyler Technologies, Inc.
 Melvin Ingram, et al v. Robert Moore, et al
 Manatron, Inc. v. Snohomish County et al
 Brown, et al. v. Oldham, et al.
 Powell v. Oldham
 City of Great Falls v. Tyler Technologies
 Isabella v. Tyler Technologies, Inc.
 VBConversions LLC v. Tyler Technologies Inc et al
 Tyler Technologies, Inc. v. VBConversions LLC
 TexasFile, LLC v Tyler Technologies, Inc
 Bujacich v. Tyler Technologies, Inc. et al
 Innovative Global Systems LLC v. Volvo Construction Equipment North America, Inc. et al
 v. Volvo Construction Equipment North America, Inc. et al
 BEACH CREEK MARINA, INC. v. ROYAL TAX LIEN SERVICES, LLC et al
 Jefferson county, of Missouri v. Tyler Technologies, Inc.
 Beall et al v. Tyler Technologies, Inc. et al
 San Buenaventura City of v. Tyler Technologies Inc
 Swan Asbestos and Silica Settlement Trust et al v. Official Tort Claimants Committee

Despite these legal woes, Tyler products continue to be widely used, including within Hamilton County. Multiple municipal courts use Tyler’s Incode Court Case Management system and Tyler is actively courting smaller courts – offering conferences that mostly consist of sales pitches for Tyler products. The Chattanooga Police Department is

currently transitioning away from Tyler's law enforcement product Brazos. In the case of CPD, they noted that Brazos had persistent problems with basic functions, like providing an accurate address to the tow lot where residents could retrieve impounded vehicles.

A final problem with the integration of external vendor products is a lack of communication with other units who will be affected by the product change. In the cases of the Hamilton County Sheriff's Office and County IT, both units have been surprised by vendor changes that affect their data pipelines. Take for example, any integration between CJUS and a product that requires custom code and data pipelines into or out of CJUS. Usually, what that means is that County IT has to write that custom code without having been present and party to the original contracts or even informed of them in a timely manner.

The problems iterated here are not an argument for a complete moratorium on external vendors, many of which offer useful products.

However, vendors acting in the interests of the county should be held to the same standards as the internally developed county products when it comes to data transparency and responsiveness to the public good.

Instead of a vendor moratorium, these findings make an argument for modifying existing product acquisition and data transparency processes to ensure that representatives of other units for whom that product will have practical significance are aware of changes, are aware of the product features, and are able to offer feedback. A Data Systems Specialist would be an ideal person to occupy this position as someone who would be responsible for understanding how the different sub-systems connect with each other. Part of this position would involve collecting positive feedback and best practices from units like the Civil Clerks Office and negative feedback and potential pitfalls from units like Red Bank in order to create resources to help advise units in the types of questions to ask and contractual considerations to guarantee in working with vendors.



Key Recommendations: Changes to bidding processes that require notification and feedback solicitation from other units affected by vendor changes, a Data Systems Specialist to interface with all new acquisitions

Looking Towards the Future

The future of data infrastructure and technology innovation in Hamilton County is bright, with a substantial united front supporting investment in new paths forward. The amount of data currently collected by Hamilton County is expansive and the county is well-positioned to make internal improvements that will also make it more feasible to share data insights with the public. A number of in-progress innovations and systems changes are in process and upcoming within Hamilton County that are well-paired with recommendations outlined in this report.

Innovations In-Progress

County IT is in-progress on substantial updates to CJUS. These updates include moving to a web-based version of CJUS and bringing CJUS to more municipal courts. County IT is also undertaking new policies and procedures under Greg Jackson, responding directly to some of the recommendations outlined in this report.

Hamilton County Clerk's Offices continue to push for innovative practices. Beyond the already advanced capacities of the clerk's offices to immediately confirm charges and get documents into imaging, the Clerk's Offices are designing new ways to improve court attendance. Jason Clark, Chief of Staff in the Criminal Court Clerk's Office is leading a project designed to send court reminders via mobile – a measure shown to improve court attendance and reduce failure to appear rates.¹⁴ This is a tangible step in transforming the data system to be more responsive to the public and downstream users.

In alignment with the Hamilton Counted initiative, renewed conversations about what types of data analytics would be most useful to different units, community groups, and the general public are underway. In the past, an interdisciplinary data users working group met to discuss data issues and features across the county, but it fizzled out in 2020. There are plans for the working group to return, building on the momentum and excitement for data improvement across the county. The Economic and Community Development office is pursuing funding options to help support technology innovation and data implementation projects.

¹⁴ Ferri, Russell. "The benefits of live court date reminder phone calls during pretrial case processing." *Journal of Experimental Criminology* (2020): 1-21.