IMPROVING ACCESS TO U.S. CRIME DATA

PRODUCT STRATEGY FOR THE CRIME DATA EXPLORER

18F

This discovery effort was aimed at helping CJIS set a trajectory for the future of the CDE, as it evolves from a minimum viable product (MVP) and into the "preferred platform for publishing UCR data." 18F was not focused on specifying features to be delivered, or defining long-term development plans. Rather, our intent was to surface key opportunity areas and other perspectives to help guide CJIS in its decision-making going forward.

Another important aspect of our work was aimed at preparing the team at CJIS for the "cost of ownership of the CDE," by identifying the processes and capabilities that are necessary for supporting and evolving the product. Part of this requires new ways of thinking, both in terms of how CJIS delivers software and how the CDE can serve as a platform for improving the publication of UCR data.

GO SLOW TO GO FAST

In terms of a product strategy, we recommend a phased approach that starts with building up supporting processes and capabilities, such as defining automated data validation processes, to ensure a strong foundation for maturing the CDE. Next, we recommend a focus on enabling "responsible access to the data," by adding capabilities that allow for more dynamic footnotes and notations and validating the core product offering once the FBI.gov URL is obtained. With these foundational pieces in place CJIS can leverage what its learned to decide on more "growth-oriented" enhancements, such as potential changes to the interface.

THE CDE AS A PLATFORM FOR DEMONSTRATING THE VALUE OF NIBRS

Given the push to achieve an all NIBRS reporting standard by 2021, we recognize the pressure to expand the presence of NIBRS in the CDE. However, the NIBRS program still only covers 30-40% of the US population, which suggests that there are higher value opportunities for CJIS to pursue in than making potentially costly changes to the user interface. Moreover, research to date suggests that our target users (media and other "advanced consumers of data") prefer to access the data in its rawest form and tend to bypass the interface in favor of downloads and the API.

INVEST IN SPECIALIZED DOWNLOADS

However, even though the volume of NIBRS data is limited, the CDE can still help demonstrate the value of NIBRS data while the program matures. On this front we recommend investing in "specialized" downloads, or datasets built around specific topics, to both showcase the value of NIBRS and learn more about which datasets are of interest to users and how they want to interact with them. In this sense, specialized downloads provide a low cost way of expanding the presence of NIBRS in targeted directions, while also setting the stage for more robust enhancements in the future.

JUST START

NIBRS is complex and so there are many potential views of the data that could be offered. Our research suggests that there is no clear consensus among users as to which NIBRS perspectives they would like to see next, but there are a few logical places to start. As such, we recommend starting with a short list of topical areas, such as women against violence and violent crime in large cities, and adding new downloads iteratively based on what is learned from user feedback and website analytics.

CONTEXT

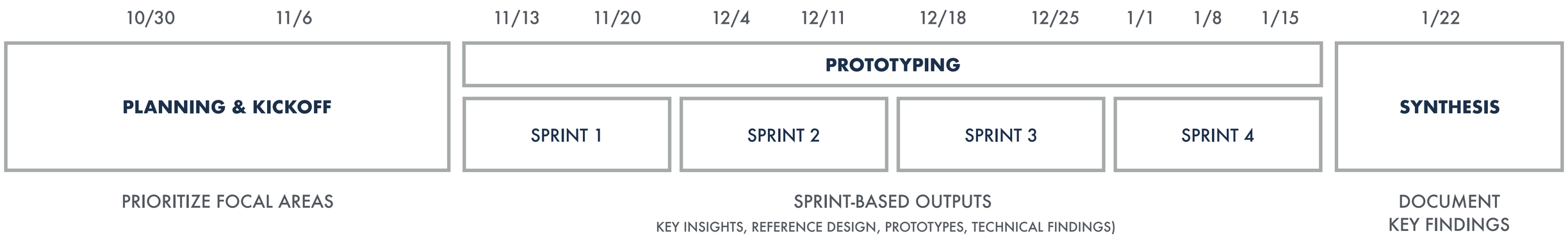
THE GOAL FOR THIS EFFORT IS TO DEVELOP A STRATEGY FOR EVOLVING THE CDE.

18F & the FBI have been working together for the past year to build a website called the Crime Data Explorer (CDE). The CDE makes it easier for law enforcement and the general public to access data collected from nearly 18,000 law enforcement agencies as part of the Uniform Crime Reporting (UCR) program. The team delivered an initial release, or minimum viable product (MVP), of the CDE in the summer of 2017 and is now preparing the FBI's Criminal Justice Information Service (CJIS) to own and evolve the product in an iterative and human-centered way.

Since its initial release, the vision for the CDE has sharpened. It is now being positioned as the "primary platform for publishing UCR data" and the "digital front door for the UCR program", by offering broader access and more dynamic views of available crime data. This focus raises new questions to explore, such as how the CDE may change how crime statistics are published going forward, as well as how broader access can lead to better, more timely data.

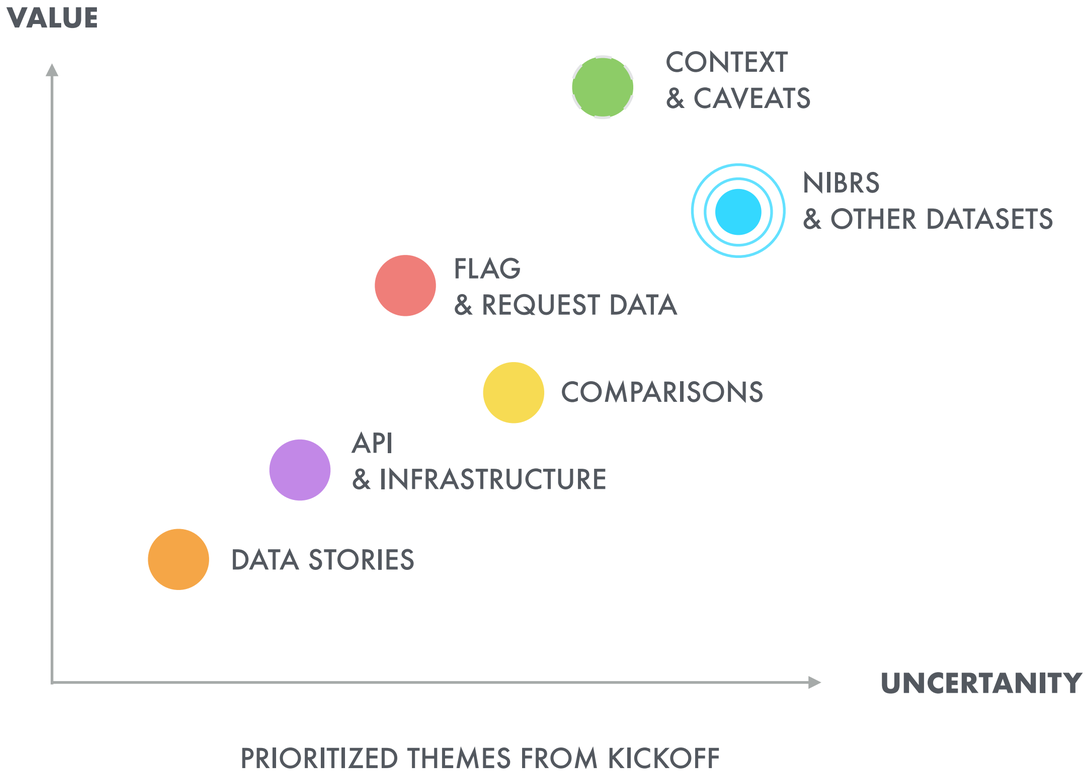
Given these goals CJIS engaged 18F in a 12-week discovery effort that was aimed at setting a trajectory for the CDE. Unlike previous development efforts, 18F was not asked to deliver production-ready code; rather it was tasked with answering key questions that would inform the future of the product, such as how to make NIBRS data easier to work with and how to expand its presence in the CDE.

PROJECT TIMELINE



During the project kickoff we identified several themes to explore. We asked CJIS to prioritize these themes based on their perceived value to the CDE program and what we thought we could learn through discovery.

While all of these areas deserve future consideration for the CDE product roadmap, we set “expanding the presence of NIBRS” and improving “context & caveats” as our focus for the 12 weeks.



PRIORITIZED THEMES FROM KICKOFF

GUIDING QUESTIONS FOR DISCOVERY

WHY SHOULD NIBRS BE AN IMMEDIATE FOCUS FOR THE CDE?

How does "expanding the presence of NIBRS in the CDE" compare with other opportunities to broaden & improve access to UCR data?

What's the value of NIBRS today considering that it only covers 30% of the U.S. population? How is it being used to facilitate analysis and drive decision-making?

What types of stories do people want to tell with NIBRS data and what perspectives can the data reliably support?

HOW ACCURATE & EFFECTIVE ARE OUR CURRENT OFFERINGS?

What questions and concerns do users have about the data? How can we improve trust and confidence in what is published?

How do we provide users with broad and flexible use of the data while still maintaining ease of use?

How can can represent NIBRS data accurately and responsibly and empower others to do the same?

HOW CAN THE CDE SERVE AS A CATALYST FOR CHANGE?

How can the CDE demonstrate the value of NIBRS, while also help promote improved awareness of the UCR program?

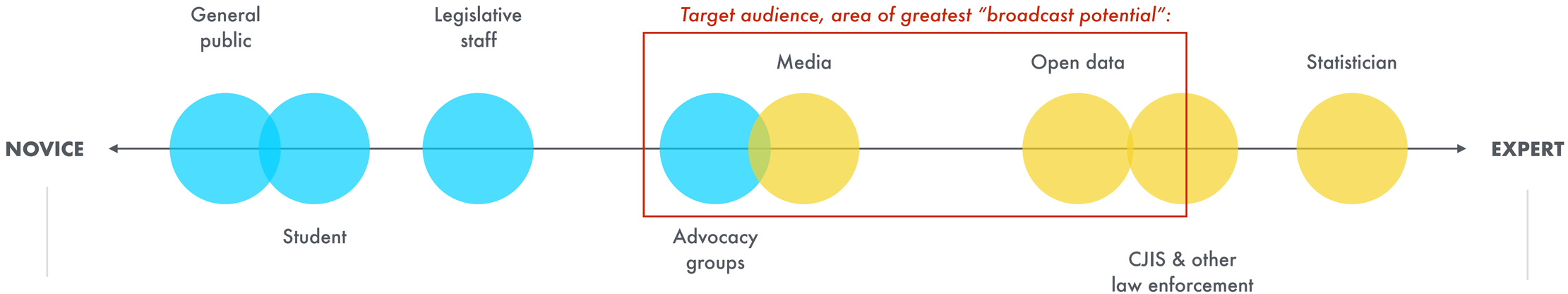
How might the unique capabilities of the CDE influence how CJIS thinks about how to publish UCR data going forward?

How can working in a more open and responsive way help CJIS better respond to reporting inaccuracies and criticism about the UCR program?

CUSTOMER FOCUS

THE USER COMMUNITY

Research suggests that the typical CDE users is familiar with the UCR program and or working with open data. Similar to the “novice”, they value context, but prefer working with the data in it’s primary form and favor downloads & the API over the CDE interface.



“SHOW ME CRIME NEAR ME”

TIMELINESS

LOCALITY

COMPARISONS

GUIDANCE

CONSISTENCY

“JUST GIVE ME THE DATA”

TIMELINESS

VOLUME

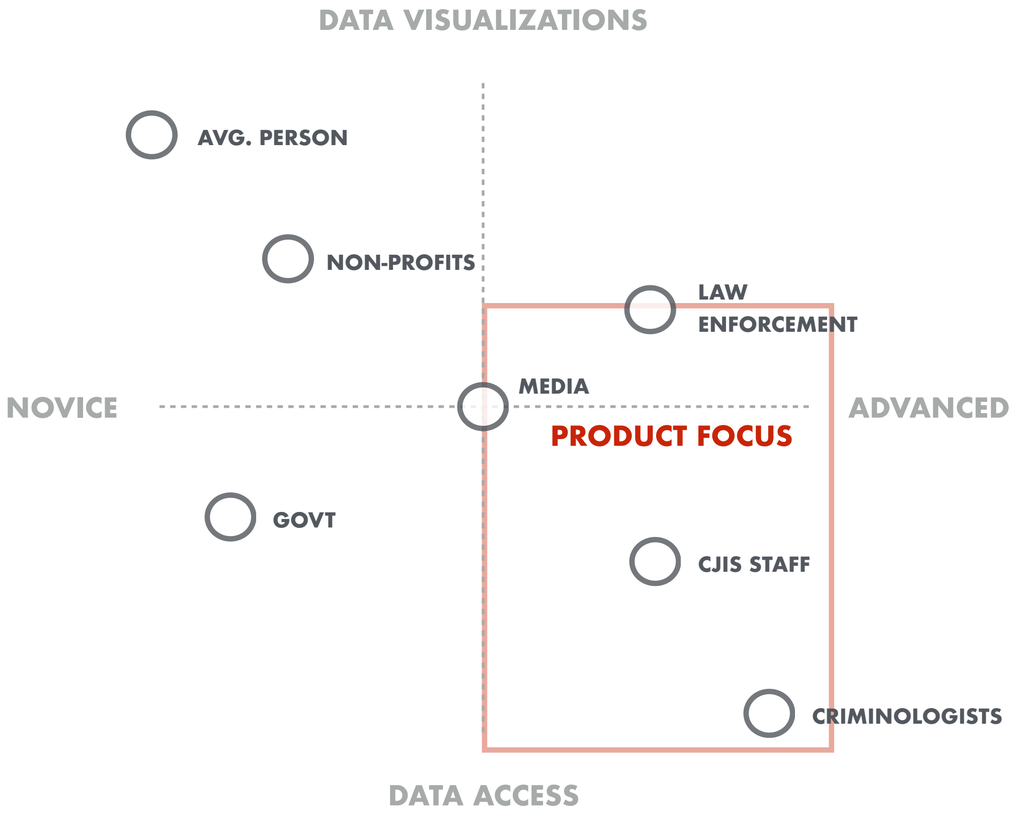
INTEGRITY

CAVEATS

FLEXIBILITY

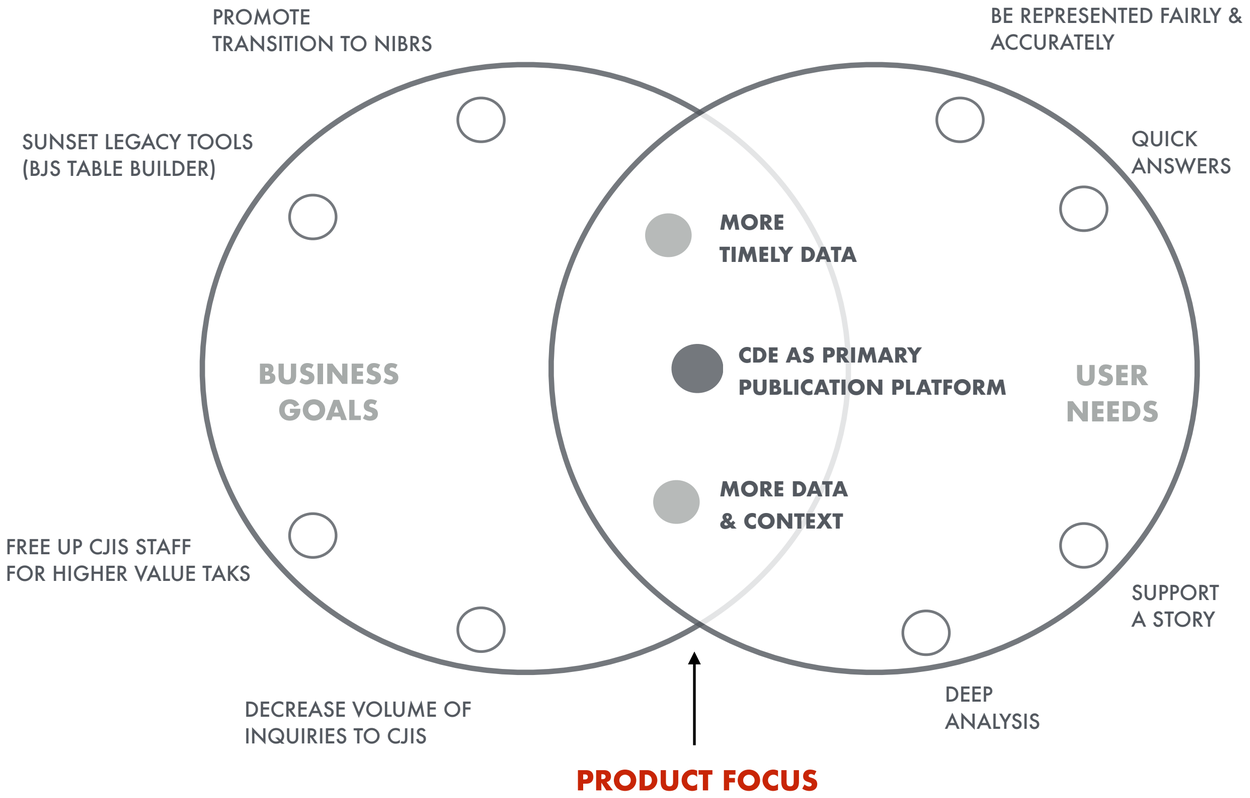
TARGET USERS

HOW USERS DIFFER IN BACKGROUND & PREFERENCES



THEMES & CAPABILITIES

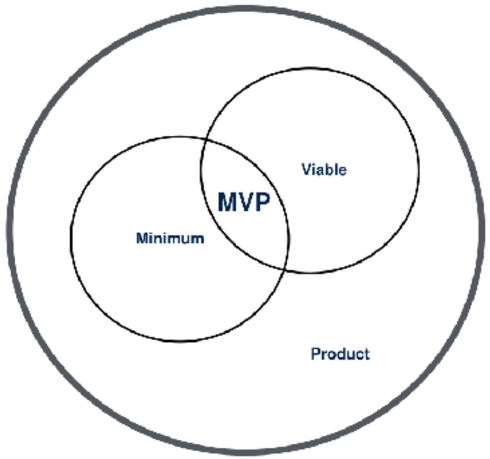
HOW BUSINESS GOALS & USER NEEDS INTERSECT



DEVELOPING A PRODUCT STRATEGY

WHERE DO WE WANT TO GO?

CURRENT STATE



View national, state, and local trends for major SRS & NIBRS offenses

Download bulk incident data by state and year, as well as other selected datasets, like hate crime, as a CSV

View definitions and related links that provide context for the data

Access UCR data via an open API

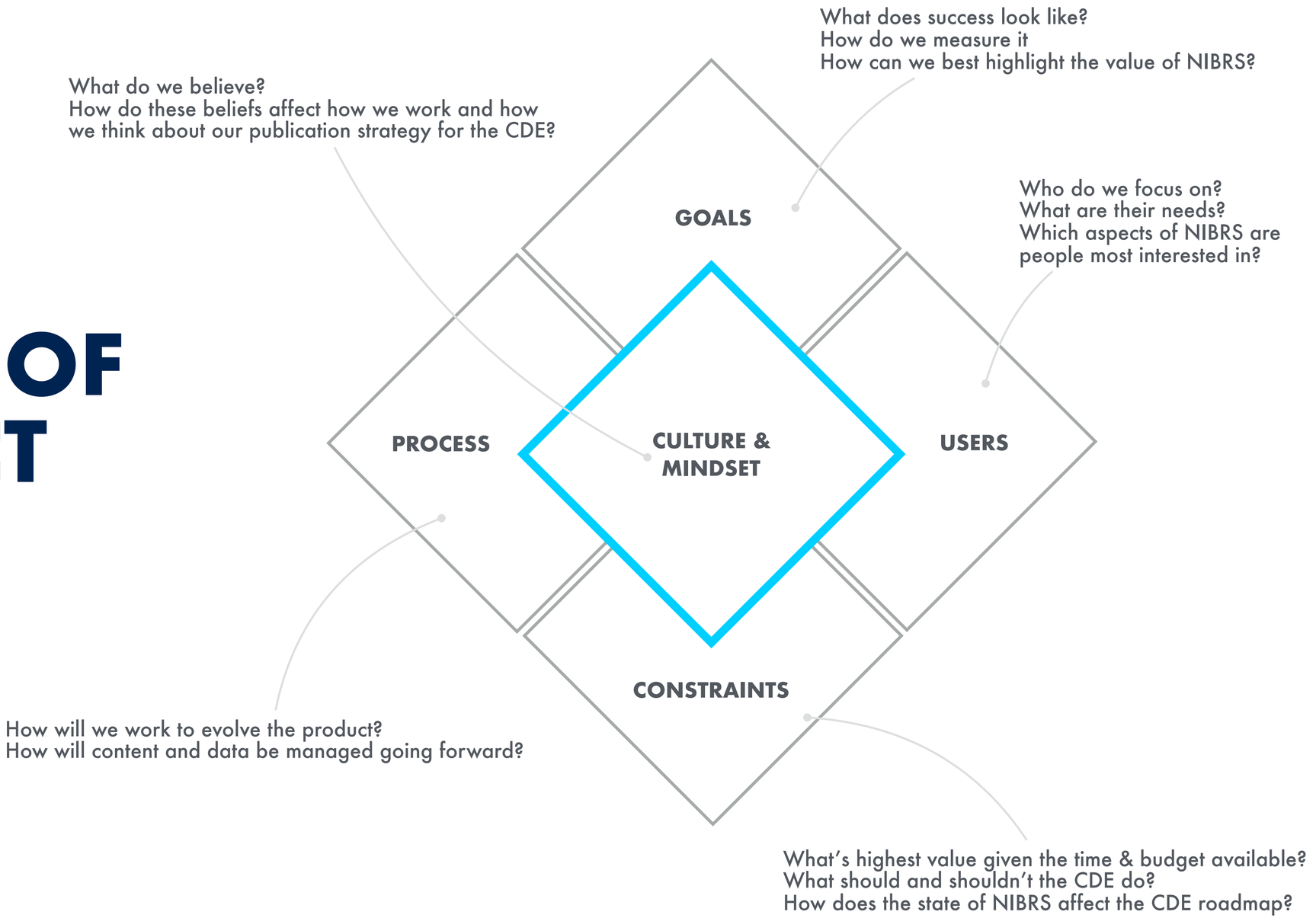
FUTURE STATE

THE CDE IS THE "DIGITAL FRONT DOOR" FOR THE UCR PROGRAM.

IT PROMOTES PROGRAM MODERNIZATION THROUGH IMPROVED ACCESS TO UCR DATA.

THIS IS WHAT WE ASPIRE THE CDE TO BE.
Use this vision statement to align stakeholders and to guide decision making. It is your North Star.

THE 5 ELEMENTS OF A PRODUCT STRATEGY



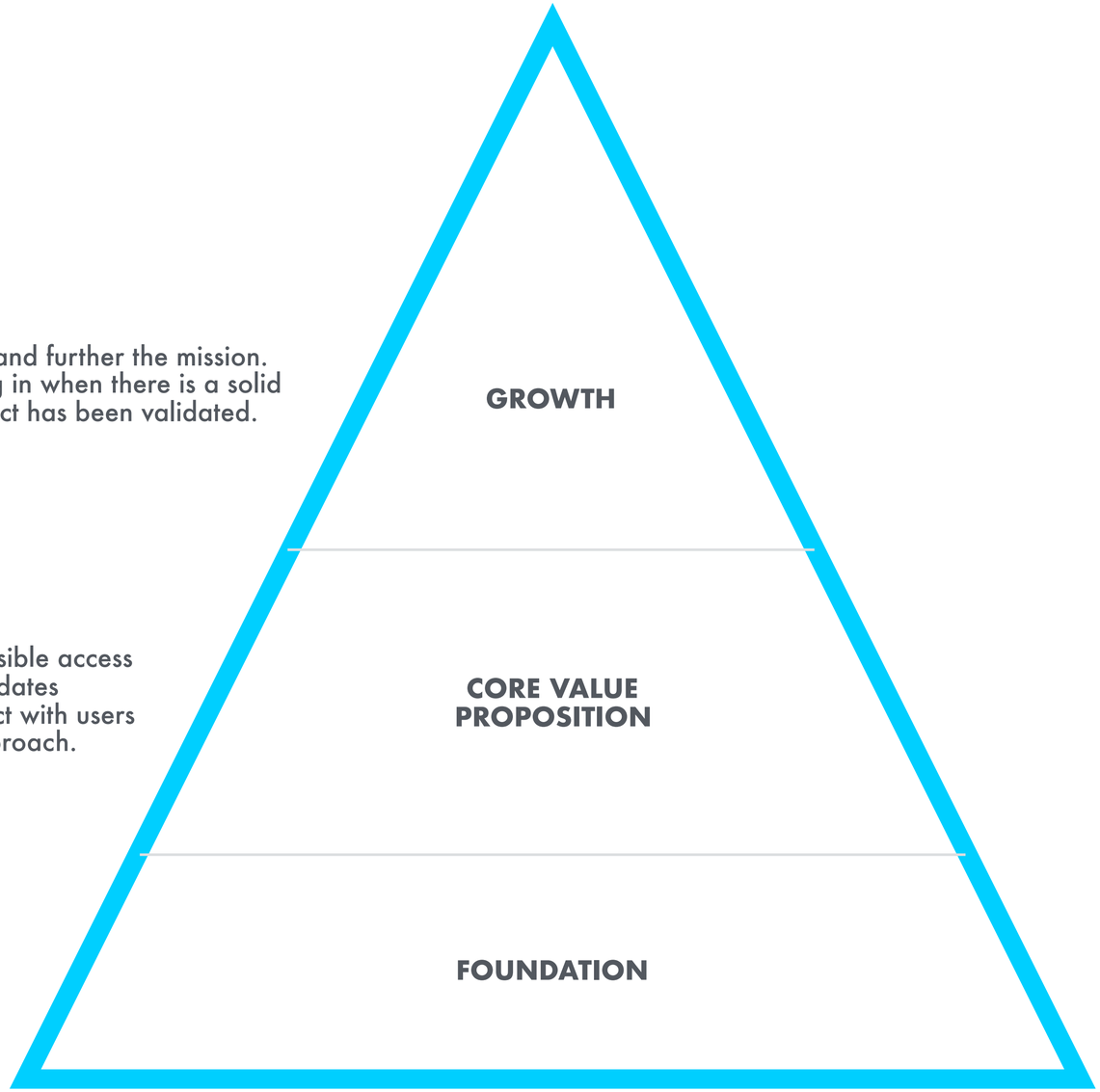
PHILOSOPHY FOR EVOLVING THE CDE

PRODUCT PHASES

Enhancements that extend the product and further the mission. The growth layer is only worth investing in when there is a solid foundation in place and the core product has been validated.

Core functionality that enables "responsible access to the data", meet user needs, and validates product direction. Requires close contact with users and an iterative, experiment-driven approach.

Processes & people are in place to support the success & sustainability of the product.



John Vars, "Product Hierarchy of Needs"

OPPORTUNITY AREAS

Expand the API

Add detail to the interface as NIBRS participation improves

Consider new visualizations based on frequently requested data and what is learned from downloads

Start treating context like data

Meet users where they are by investing in downloads

Use specialized views to highlight the value of NIBRS & as a platform for informing future perspectives

Define qualitative & quantitative success metrics

Develop processes for validating & maintaining the data

Adopt iterative development practices

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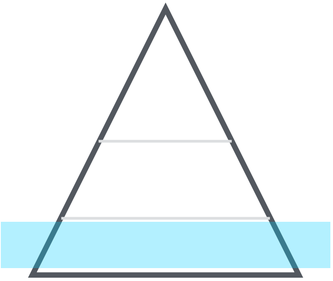


DEVELOP PROCESSES & CAPABILITIES FOR SUSTAINING THE PRODUCT

Establish a team-wide, shared understanding of what success looks like based on a basket of qualitative and quantitative success metrics and regular measurement intervals.

Automate as much data ingestion and production as possible, with an emphasis on the ability to audit the process. Ideally, the audits are automated in some fashion too with indicators that are visible team wide.

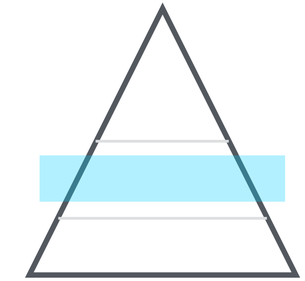
Validate ideas early and cheaply through prototypes and user testing with a trusted user community. Aim to ship something at the end of every sprint cycle, and use the end of a sprint cycle to reflect and improve on the internal CJIS processes, not just the product.

CORE VALUE

Start treating context like data

Meet users where they are by investing in downloads

Use specialized views to highlight the value of NIBRS & as a platform for informing future perspectives



ADD CORE FUNCTIONALITY THAT VALIDATES PRODUCT DIRECTION

The core value proposition of the CDE is to provide accurate and easy to use UCR datasets.

The largest risk to our current core value proposition is to provide confusing or, worse, inaccurate data. The lack of caveats, footnotes, and methodology are holes in the current value proposition that should be remedied.

Build a supporting system that helps CJIS manage contextual data, such as caveats, footnotes, and methodology with the same rigor as the rest of the data.

Validating core functionality requires close contact with users and an iterative, experiment-driven approach.

GROWTH

PURSUE ENHANCEMENTS THAT FURTHER THE MISSION

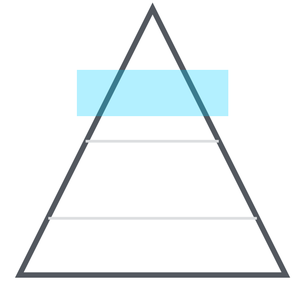
Growth features are built on a strong foundation, and a clear core value proposition. Without these two prerequisites, the risk of becoming a "feature factory" is increased.

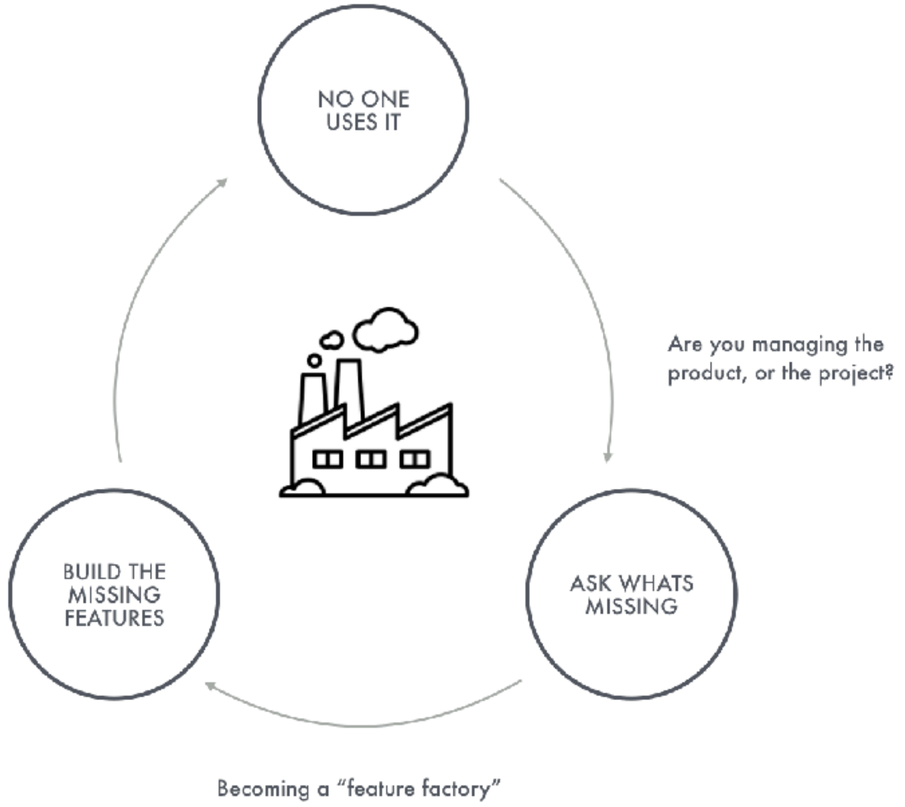
The cost of being a feature factory is not only using limited resources to build features that users don't want, but also the cost of maintaining those (unused) features over the lifetime of the product.

Expand the API

Add detail to the interface as NIBRS participation improves

Consider new visualizations based on frequently requested data



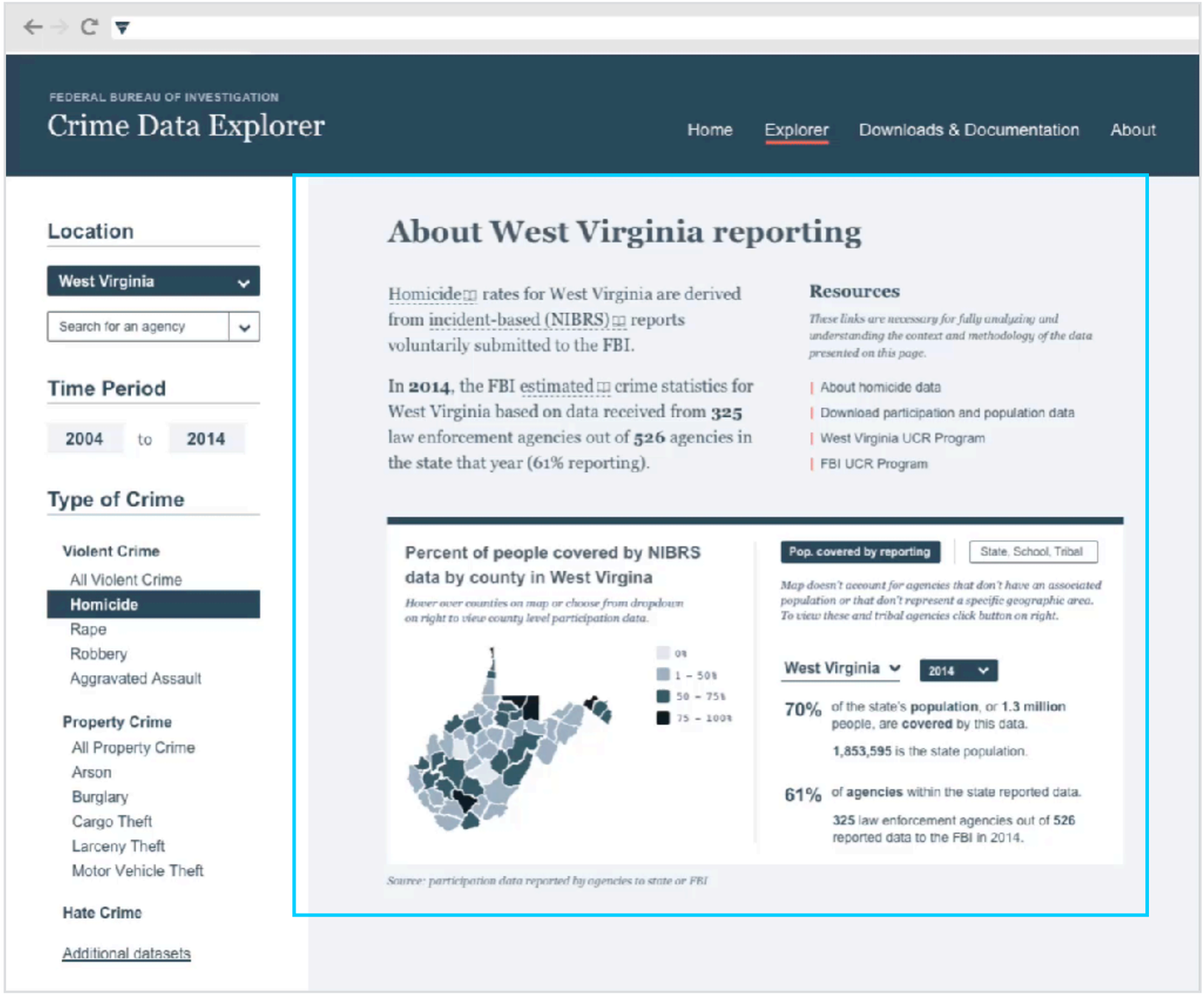


CONCEPT DESIGNS

MAPPING POPULATION COVERED

Many of the users we spoke with explained that they take steps to assess the reliability of a dataset before they use it. Determining reliability can be a subjective process, but typically involves an examination of the source/publisher of the data and its reputation, a high-level review of the volume and integrity of the data, and a look at the quality of its supporting documentation. Data from the CDE rates highly in each of these areas, but since participation in the UCR program is voluntary, the volume of available data can be uneven. Within this context, we found that users were especially interested in the participation rate for the area they were viewing data for, with high participation suggesting that the data was more likely to be trusted.

This concept explores how *percent of the population covered* (a measure of participation that takes into account population density) may be mapped over a geographical areas to build trust in the data, or to warn users when participation is low. Similarly, the concept provides a county-based view of participation within a state, to provide an at-a-glance view of the maturity of the UCR program in that area. The UCR staff we spoke with suggested this might be a helpful feature for promoting broader visibility and accountability within the program.



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DYNAMIC FOOTNOTES & NOTATIONS

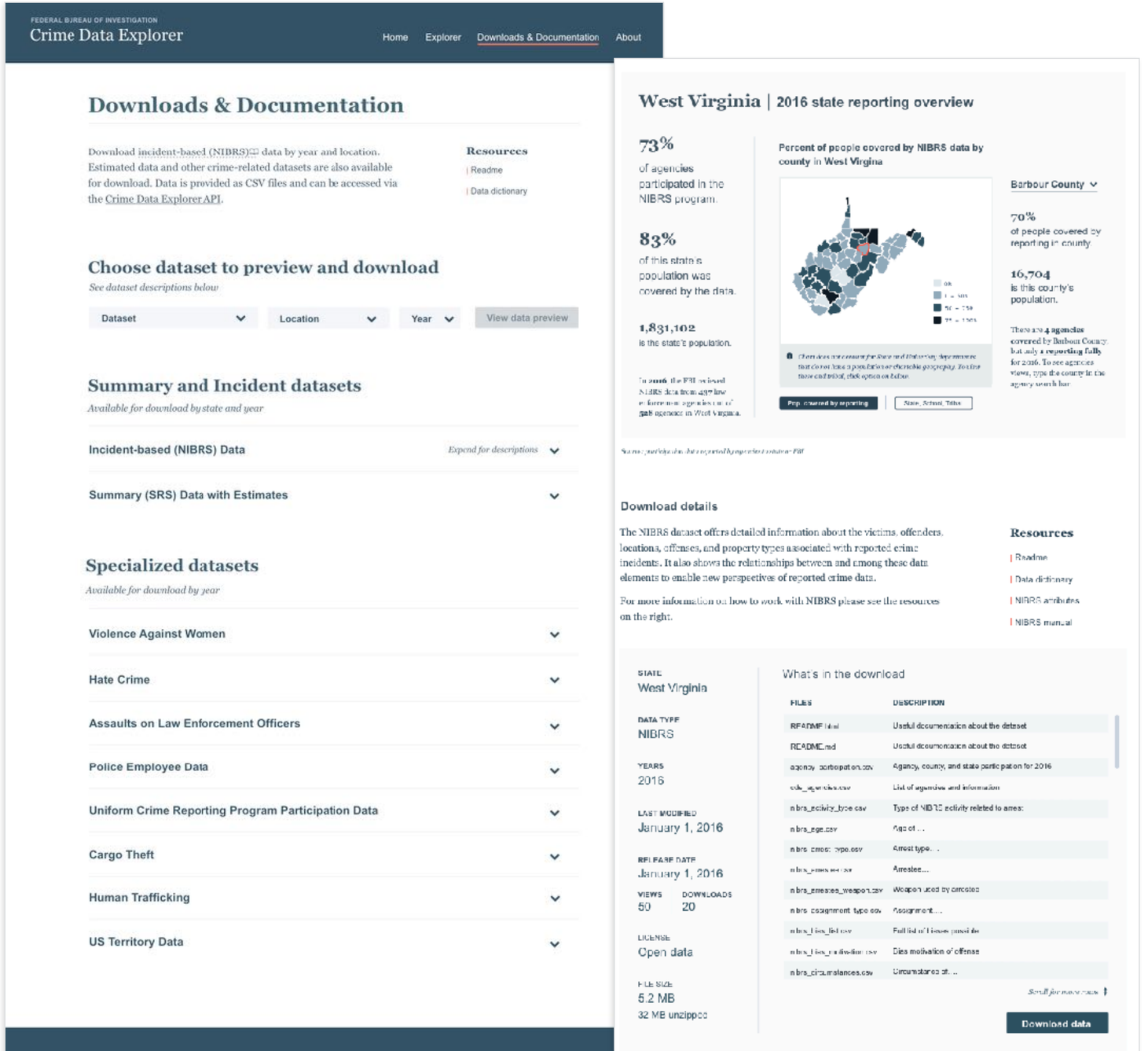
In our testing we learned that users didn't always understand what the data they were viewing meant and how it was derived. This confusion was exacerbated when there were gaps or unusual changes in an agency's reporting from year to year. Lacking context, a user might assume a surge in Orlando's homicide rate in 2016 was due to other factors beyond the inclusion of the Pulse nightclub shooting in the city's homicide totals.

This concept explores how the user interface could be extended to dynamically include specific annotations of CDE data. Currently the CDE includes only limited information about methodology, buried in static footnotes or disclaimers that redirect the user offsite. Adding functionality that allowed for these details to be more easily accessible and updates would not only improve the user experience, but help mitigate risks that users would misinterpret UCR data.

EXPANDING THE DOWNLOAD EXPERIENCE

Similar to the “population covered” concept, we learned that users value the context behind the datasets they’re downloading because it helps them roughly assess its reliability and develop a mental model for how to work with it. We also saw examples of how other government and open data sites accomplish this, by providing a brief narrative and “preview” of the data that is available for download.

While this concept incorporates some of these ideas for previewing the data, it also accounts for the broader product strategy outlined in this report – that CJIS should prioritize adding new downloads to the CDE because they are the preferred way of accessing the data for our target users and they may serve as a proving ground for future user interface changes. Under this approach, the current design for the “downloads and documentation” view will need to be extended in order to account for longer file listings.



SPECIALIZED DATASETS

NIBRS data distilled into single-file downloads for people comfortable with using a spreadsheet. This can include both information on NIBRS incidents or higher-level summary aggregations.

OPPORTUNITIES

By building simpler files that can be loaded in spreadsheets, CJIS can share NIBRS data with a much larger user base.

CJIS can lead by example, establishing proper techniques and methodologies for making datasets from NIBRS

Specialized datasets are still large enough to support many potential types of additional analysis

Specialized datasets and the intermediate tables that would be created to help build them could be shared in API methods and other public-facing tools

CHALLENGES

Building specialized datasets involves making many design decisions that require careful planning and consistency

There will need to be an automated build system for generating these files and tracking dependencies between all the tables used to make them

There is a risk that decisions on what data to include, what datasets to prioritize, and if any datasets are discontinued would be seen as politically-motivated

Downloads are often still large. A single zip for a single year of data is 20MB compressed, making it hard to provide data for all years

EXPANDING THE DOWNLOAD EXPERIENCE

Similar to the “population covered” concept, we learned that users value the context behind the datasets they’re downloading because it helps them roughly assess [illegible] and develop a mental model for how to work with it. [illegible] saw examples of how other government and open data sites [illegible] by providing a brief narrative and “preview” of the data that is available for download.

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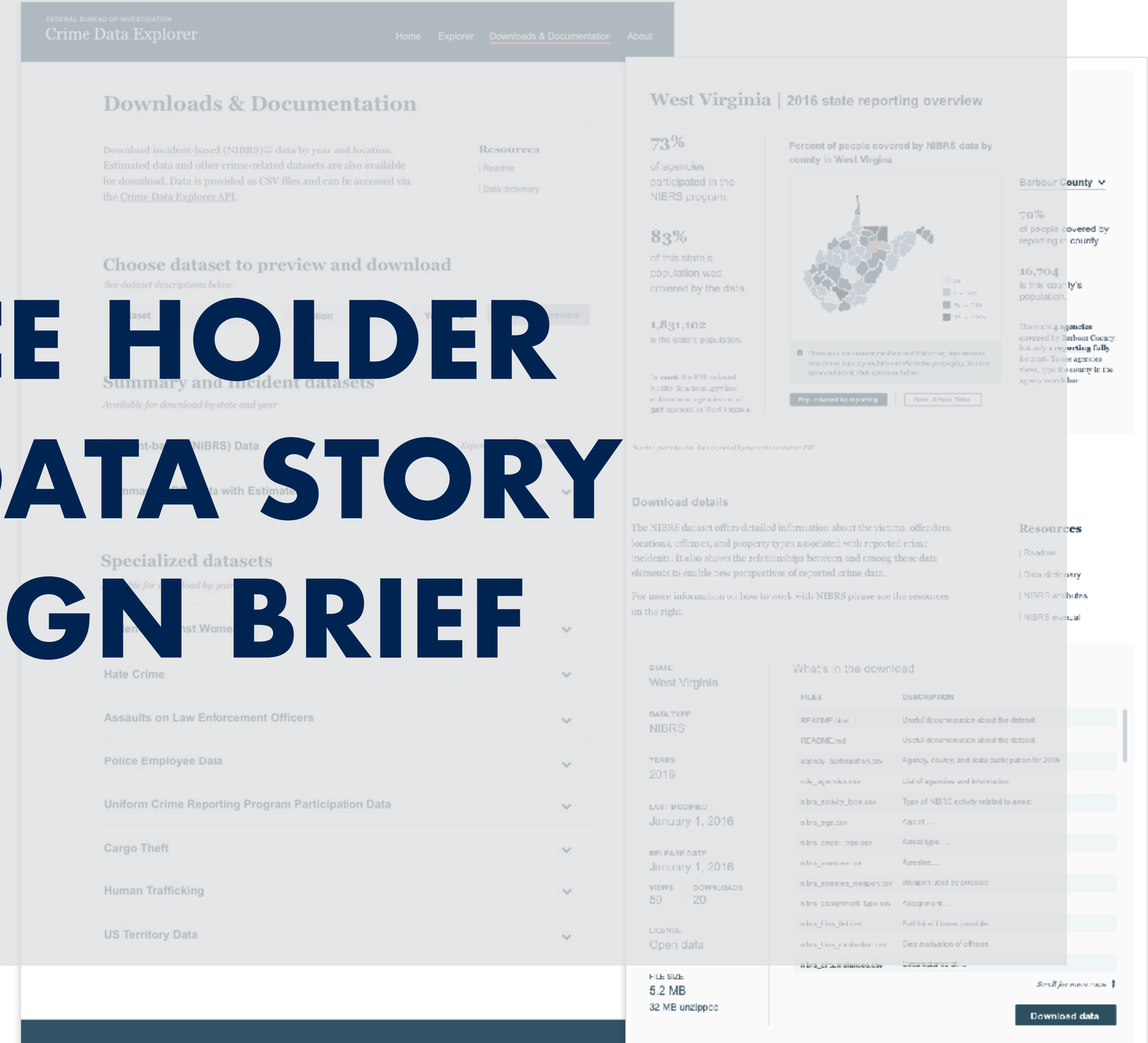


PLACE HOLDER FOR DATA STORY DESIGN BRIEF

APPENDIX

DO ONE THING REALLY WELL

A GOOD PRODUCT HAS FOCUS. For the CDE that means providing broad access to UCR data; it is not a dedicated tool for data analysis or visualization.

MEET USERS WHERE THEY ARE

OUR USERS HAVE A RANGE OF NEEDS & PREFERENCES. To serve these different groups we provide multiple pathways to the data, such as a web interface, downloads, and an API, rather than attempt a “one-size fits all” approach.

BE INTERESTING, BUT RESPONSIBLE

ORIENT & GUIDE PEOPLE TO THE DATA, BUT LET THEM DRAW THEIR OWN CONCLUSIONS. A persistent challenge for us was striking a balance between presenting information in a way that was engaging to the public, while staying true to the FBI’s reporting standards.

PROVIDE A CONSISTENT EXPERIENCE

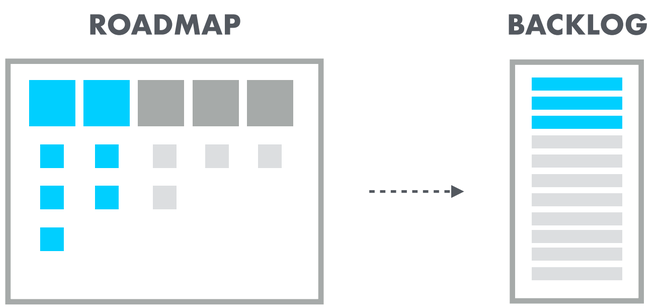
USERS DON’T UNDERSTAND THE NUANCES OF THE UCR PROGRAM, LIKE THE DIFFERENCE BETWEEN SRS & NIBRS. We sought to minimize these differences by centering the web experience around a common set of crime types and maintaining a similar look and feel regardless of the data type being displayed.

INSPIRE TRUST

THE CDE IS AN EXTENSION OF THE FBI BRAND. We sought to build trust in the CDE by explaining how the data should be used and what its limitations are. Similarly, we prioritized usability, performance, and data integrity over expanded functionality.

GOAL FOR ROADMAP EXERCISE

SET A TRAJECTORY FOR THE CDE THAT GUIDES NEXT STEPS. THE ROADMAP SHOULD BE REVISITED EVERY 3-6 MONTHS.



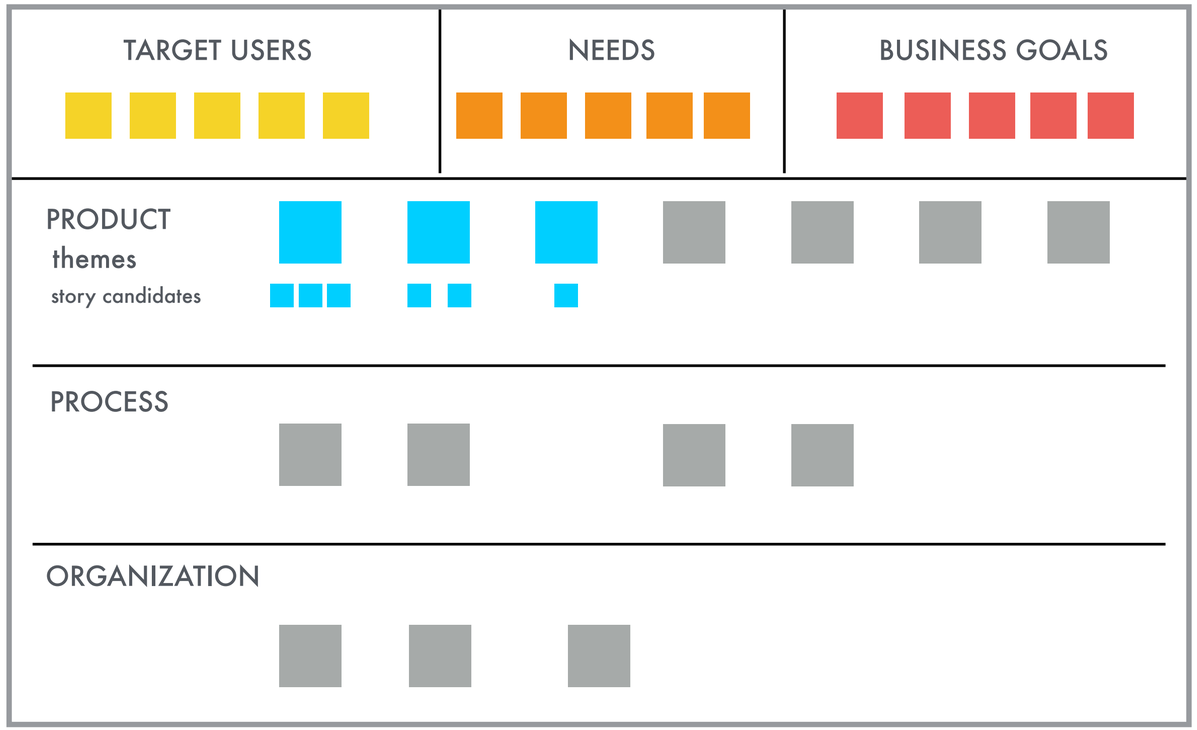
High-level plan that promotes alignment around product direction

A canvas for big picture planning; focused on broad themes to pursue, not specific features

A tactical view of the work to be done based on the roadmap

The backlog is constantly changing.

PRODUCT VISION: the vision for the CDE explained in 1-2 sentences



CDE DIGITAL ROADMAP

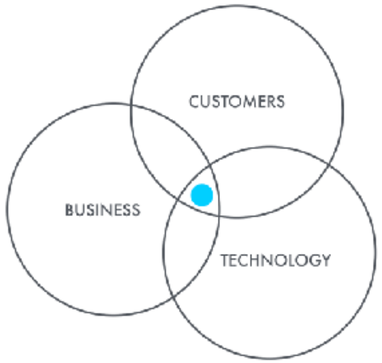
	NOW (2-4 MONTHS)	SOON (3-6 MONTHS)	LATER (6+ MONTHS)
PRODUCT THEMES	MORE DATA ENABLE A DIGITAL ORGANIZATION	IMPROVED CONTEXT & CAVEATS MORE ROBUST ANALYTICAL CAPABILITIES	IMPROVED GRANULARITY MORE TIMELY DATA
STORY CANDIDATES	Add incident endpoint (expand API) Add dimensions for existing NIBRS offenses Add new NIBRS offenses to Explorer Add SHR dataset for download	Enable dynamic flagging/footnotes for the data Enable trend-based comparisons between states Add demographics to complement crime data Add a BJS-like table builder for custom queries	Enable new geographic perspectives of the data, such cities, counties, and regions. Allow users to flag potential issues with the data for correction
PROCESS	Collect feedback on which datasets to add Consider prioritizing access to the data via the API & downloads over changes to the interface that require more UI/UX work	Conduct research to determine if a custom query tool similar to the BJS table-builder is needed, or if pre-generated downloads will suffice	Decide how to represent non-standard reporting areas, like cities, responsibly Explore opportunities for tighter integration between CDE and New UCR to facilitate more regular updates
ORGANIZATION	Establish a cross-functional digital team that is fully dedicated to the CDE. Hire UI/UX help Seek out agile & product owner training Start building a culture that embraces more widespread use of agile & open source	Work with the publication team to develop a mechanism and process for mapping annotations with specific agencies & years	Consider collecting more GIS information from LEA's to improve the granularity of the data available. Explore reforms to the UCR program that improve the volume and quality of the data available to the CDE.

THE CDE IS A PRODUCT, NOT A PROJECT

A product is designed to meet a specific user need as part of a larger business strategy.

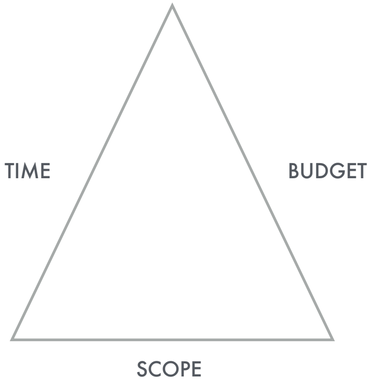
A product mindset is focused on people, problems, and outcomes and requires a fundamentally different approach than traditional IT project management.

PRODUCTS DELIVER VALUE



- Learning & adapting
- Design
- Iterative development
- Hypothesis-based
- Purposeful
- Value generation

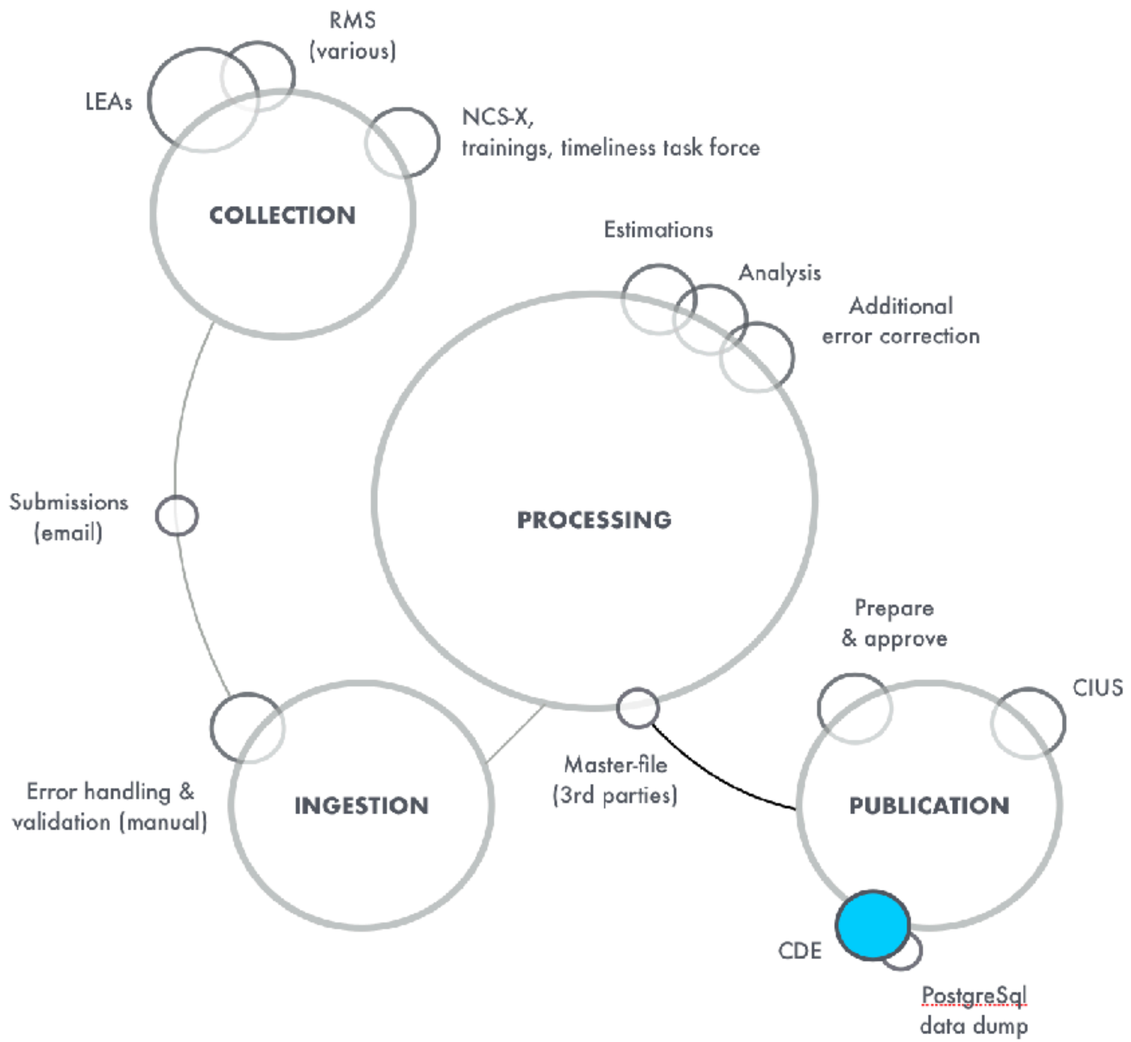
PROJECTS ARE MANAGED



- Predictability & efficiency
- Execute
- Waterfall development
- Requirements-based
- Reactive
- Conformance to a plan

THE CDE IS PART OF A DIGITAL ECOSYSTEM

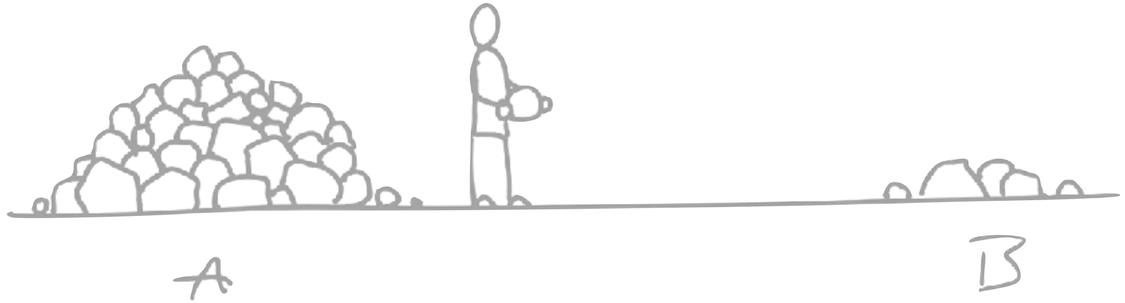
Do all of these pieces work in isolation, or are they part of a cohesive whole? What goals do they help CJIS work towards and how can we measure them? How do we coordinate teams and efforts across these various work-streams?



The UCR digital ecosystem - key systems and workflows

PRODUCT DEVELOPMENT ISN'T A LINEAR PROCESS - IT'S ABOUT LEARNING

Traditional "command and control" approaches to project management, with its focus on predictability, can distract from what truly matters - people, problems, and outcomes - and increase the risk of building the wrong things.



Ryan Singer, Why Agile Isn't Working and What We Can Do Differently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