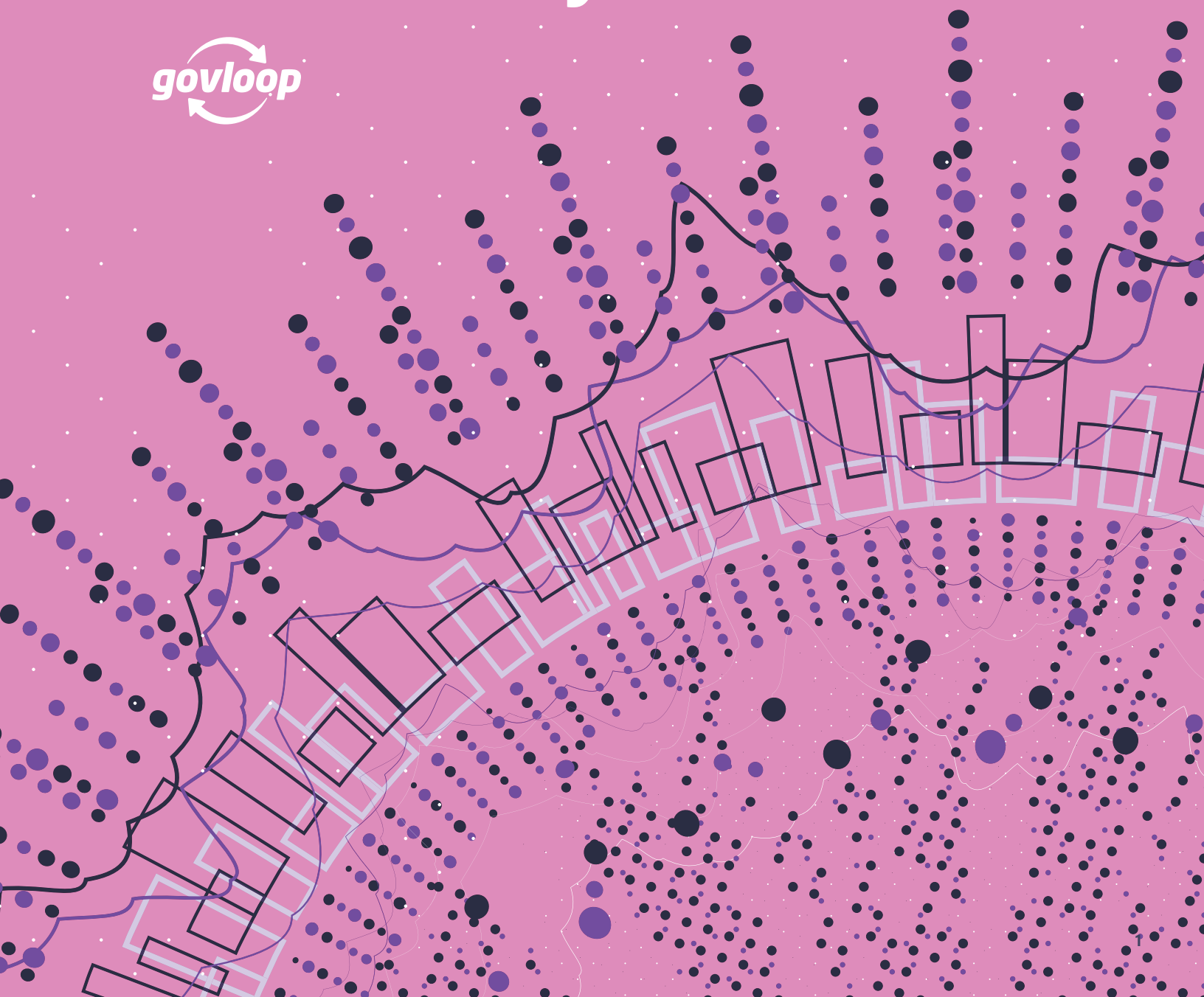


# Analytics Now: Effective Use of Government Data Today



# Contents

- 3 Executive Summary
- 4 **Case Study #1**  
SBA Makes Data a Priority
- 7 Adopting a Data-Driven Mindset in Government
- 8 **Case Study #2**  
Putting Young Bostonians to Work
- 10 **Case Study #3**  
ICE Takes on Criminals with Analytics
- 13 Overcoming America's Opioid Crisis with Analytics
- 14 **Case Study #4**  
North Carolina Takes an Enterprise Approach to Decision-Making
- 16 **Case Study #5**  
HRSA Improves the Health Data Collection Process
- 19 3 Web Analytics Myths and Misconceptions
- 20 5 Steps to Implementing Data Analytics
- 21 Conclusion

# Executive Summary

It's tough to put a finger on exactly when data became The Next Big Thing in government because the government has long been a data collector, generator and user. But as technology has advanced, so has government's ability to crunch numbers and make data-driven decisions.

Data analytics, for example, helps equip government employees with real-time data in easy-to-understand formats, such as at-a-glance charts. Considering that data analytics brings benefits such as cost savings, better allocation of resources and improved modern service delivery – terms many Americans might not associate with government – it's easy to see why analytics is top of mind in government today.

That attention is manifesting in myriad ways. Most recently, [Cross-Agency Priority Goal 10 of the 2018 President's Management Agenda](#) called on “federal executives to make data-driven decisions and analyze trade-offs between cost, quality, and value of IT investments,” but data-based initiatives and programs existed long before that.

State chief information officers find that as data management processes mature, they need to work less on organizing data, increasing the opportunity to develop analytics and derive insight from the data, according to the National Association of State Chief Information Officers' [2017 State CIO Survey](#).

To see exactly how government entities at all levels are using data to improve services in various lines of business, we went straight to the sources. For example, we learned that analytics helped more teens find summer jobs in Boston, which decreased crime by 35 percent, and a new analytics platform at the Health Resources and Services Administration is saving employees time. In this guide, you'll read Q&As – edited lightly for clarity and length – with experts in the government data field.

Here are several stats that provide context around the vast amounts of data that agencies are gathering and analyzing today:

## 163 zettabytes

(163,000,000,000,000,000,000)

*The amount of data that will be produced each year by 2025.*

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## 302,494

*The number of datasets on [Data.gov](#), home of the U.S. government's open data, as of Aug. 22, 2018. On July 30, it had 236,341 datasets.*

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## 5,700

*The number of websites the Digital Analytics Program [collects](#) web traffic from.*

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## 90%

*The amount of all digital data in the world that was [created](#) between 2015 and 2017. Only **1 percent** of that data has been analyzed.*



## CASE STUDY #1

# SBA Makes Data a Priority



### EMILY KNICKERBOCKER

*SBA's Chief Data Officer*

**The Small Business Administration (SBA) has spent eight years putting data at the center of various programs, including those related to loans, disaster recovery and performance reporting.**

- + SBA has been working toward becoming a data-focused agency since 2010.
- + To achieve that goal, the agency has relied on training, change management and general awareness of data.
- + Now SBA is using predictive analytics to help with disaster response and loan programs, estimating subsidy costs and contingent liabilities.

## How did SBA's focus on data start?

The data-centric culture really began in 2010, which is when SBA underwent a three-part training effort and a shift in performance reporting. The data training focused on: one, using the questions to be answered to define what data to collect; two, data analysis methods; and then three, how to convey the story told by the data by moving beyond summarization to synthesis and drawing conclusions. It was also during 2010 that we began to automate manual performance reporting processes to shift more resources toward data analysis and visualization to draw insights from the data.

## Eight years is a long time to work on this, but it's a journey, not a one-off project, right?

Exactly. Along the path, we've been moving toward using more and more data as part of our processes and to inform decisions, and I would say at this point, we're currently moving toward what we call an evidence-based culture and employing use cases to drive our data efforts. SBA has established a centralized program evaluation function and identified an enterprise learning agenda that identifies priorities where evaluations can provide insights about program effectiveness, progress toward desired outcomes or test pilot initiatives or program adjustments. That's where we stand today.

## Can you describe how the focus on data has changed in that time?

Back in 2010, we really were trying to create an awareness around data analytics as we started to develop the skill sets within SBA employees to understand the data that they're working with. Along the way, we've automated a lot of processes to free more people up to spend more time on the analysis piece of their work and less time on the manual processes.

## How did you create that awareness and those skill sets?

When we first really began having data analysis training, it was offered throughout the agency. Folks got to work on some use cases in a lab setting to work on different examples of data analysis projects, and then they could go back to their normal portfolio and apply what they learned. Since 2010, there has been data analysis training throughout the last eight years where people could learn new skills or expand on the skills that they already have.

## What do you look for when you're hiring the next generation of workers?

The next generation of workers will likely spend less time executing transactions and more time analyzing data to draw

insights and identify patterns, making data analysis applicable across a wider range of goals.

## What improvements or accomplishments has data analytics helped SBA achieve?

One thing that we've been working on more recently is something called the Data Accountability and Transparency Act, and it requires the agencies to present all of their federal spending award data. We've been using the information that all of the agencies are required to report to try to inform some of our processes and decision-making. Since we've spent so much time putting the data together and it's out there for public use, we're trying to develop use cases for that dataset and pairing it with some other types of data to really get some insights on how the agency is delivering programs.

## How does SBA use predictive analytics?

SBA uses predictive analytics to mitigate risks across programs and operations. It's also prepared for disaster response. For example, in the disaster program, we use predictive analytics to better understand where to deploy resources to be ready when disasters happen. Then, for the loan programs we also use predictive analytics to estimate subsidy costs and contingent liabilities. The loan program is an annual process in which we are continuously updating our analytics around the loan program performance to understand what we expect our costs to be.

## With so much experience in transitioning to data-centricity, what lessons can you offer other agencies that may not be as far along in their analytics journey?

Start with teaching the basics using the tools that are already available. For instance, many times employees can learn a lot about their data just from using pivot tables or spark lines. Once employees are looking for more analytics capabilities, that's when you want to invest in more advanced tools.

## Looking ahead, what's on your data analytics wish list? What additional capabilities would you like to see SBA gain through data analytics?

The first would be an agencywide business intelligence tool, which would allow employees to more easily use data to answer questions and inform decisions. The second would be greater data standardization. The DATA Act and technology business management has done a lot to standardize data definitions, but more could be done to enable comparability across programs and agencies.



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## INDUSTRY SPOTLIGHT

# Adopting a Data-Driven Mindset in Government

*An interview with Chris Atkins, Vice President, Digital Government Transformation, SAP*

It's not a surprise to anybody that both society and government are growing more complex – as are the problems that need to be solved. Around the world, governments are working to provide citizens with economic growth, access to healthcare, a healthy environment, and better infrastructure. In the face of these massive challenges, public sector officials often struggle to access the information they need to develop or change outcomes in these areas.

This presents government both a challenge and an opportunity. The challenge? Government must deliver on its mission to provide, protect, and prosper in an increasingly multifaceted society where it is difficult to develop one-size-fits-all programs that meet the precise needs of its individual citizens.

“As society becomes increasingly more complex, government leaders are struggling to integrate that complexity into policy, strategy, and execution,” said Chris Atkins, Vice President, Digital Government Transformation at SAP, a leader in analytics solutions.

But there is massive potential here, as well. “We can help government deliver new, better, and more effective services to citizens by adopting a data-driven strategy that enables real-time insight and analytics,” added Atkins.

To learn more about the opportunity for government in adapting a data-driven strategy, GovLoop spoke more with Atkins about the challenge of complexity in government, how agencies can work to better leverage existing data, and why they need to change their current mindset about data.

“The complexity of the daunting problems we must solve, like infant mortality or the opioid crisis, can often keep the public sector from designing programs and policies that really move the needle,” Atkins said. “But data is what can help us break through this complexity, to understand their government businesses better, and to design more effective ways of engaging their citizens.”

Though many in government today are aware of the insights that can be gained from data analytics, there is still one massive barrier to overcome, according to Atkins: government's typical strategic mindset.

So what is government's typical strategic mindset? “It's all about government simply asking themselves how to marshal more resources to solve the problem,” explained Atkins. “But their view

of resources are money, people, systems, or maybe physical assets like facilities.”

Atkins said that data is not often viewed as a strategic asset in and of itself that could be leveraged.

“Too often government will just invest money in people, and maybe build a system, but not leverage the insight that can come from data to help calibrate what the objectives are for that policy,” he said. “Today, government has to develop this mindset that data itself is a strategic asset that needs to be leveraged. And when they do that, they can help break down these complex problems to find the root causes of things like opioid abuse.”

To do this, Atkins said governments can get started in two ways: leveraging existing data, and creating data-sharing networks.

According to Atkins, the data that government organizations need to drive digital transformation is usually contained in their legacy systems – but these systems are not architected to take advantage of the data's value. Government should adapt a platform that brings these disparate sources of data together, enabling them to integrate it, make sense of it, and deliver it to the right places.

In terms of creating data-sharing networks, Atkins believes that government needs to share its own data – safely and securely – with partners in the private sector that can enable new business models and services for citizens.

To do this, agencies need the right technology, technology that is intuitive and secure. That's where SAP comes in.

“SAP has the experience and the solutions to help government become data driven,” Atkins said. Whether your government organization needs to put a platform in place that will support a single version of the truth, optimize existing processes through real-time analytics and insight, or create new business models by harnessing the power of data, their solutions can help.

In particular, the SAP HANA (high-performance analytic appliance) application uses in-memory database technology that allows the processing of massive amounts of real-time data in a short time.

By taking advantage of the right platforms, changing the mindset around data, and sharing data more broadly, government leaders can start to take full advantage of the powerful insights from data.



## CASE STUDY #2

# Putting Young Bostonians to Work



### ALICIA ROUALT

*Digital Services Manager, Boston  
Metropolitan Area Planning Council*

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**SuccessLink is an online tool that lets 3,300 teenagers in Boston register for summer jobs and uses analytics to match them with meaningful work in their communities.**

- + A link exists between the number of teens working during the summer and crime rates: Those who participated in the city's summer jobs program had 35 percent fewer violent crime arraignments in the 17 months after their work.
- + The tool uses an algorithm – initially tested on marriages and medical school applicants – that helps make successful matches to pair teens and jobs.
- + The tool was so successful in its initial work that Boston's Department of Innovation and Technology has internalized it and runs it as its own product under the digital services team.



## Why was it important to increase the number of teens who work during the summer?

We've seen a decline in summer employment for young people generally – across the United States that's a trend. What that does is impact future entry into the labor force, so when jobs are going down in the summer, it's less likely you'll have an easier time getting a job as you graduate from high school. It's this chain effect. We also know there are really positive long-term outcomes for youths when they have a summer job. You see things like a decrease in risky and violent behavior and arrests, but also higher graduation and attendance rates. In general, it's a good thing for a young person to have a job in the summer.

The city of Boston has been running this youth jobs program for years, since the 1990s. This project was really about improving the efficacy of the city's ability to run this program well and do so with a really positive experience for young people when they go through the process.

## Youth who have participated in Boston's summer jobs program had 35 percent fewer violent crime arraignments and 57 percent fewer property crime arraignments in the 17 months after their participation. What other successes have you seen?

We hired more young people. We freed up staff to not spend as much time on the phone doing menial tasks but actually improving their program and performing youth outreach. In general, if you took away the analytics side of that, we wouldn't be able to measure outcomes, and therefore we wouldn't be able to make the case to policymakers and folks who have decision-making authority that they might want to shift or tweak certain programmatic elements. Analytics in general has a really positive impact on the kind of decisions that decision-makers make, and our ability to make informed policy.

## How did you decide to use data analytics to tackle the problem?

We were tasked with the idea of: How do we improve the end-to-end experience for a young person in finding and securing a summer job? While the city has this basic information on data that they would use for reporting, they had little data on those more operational analytics — information like how long it took a city staff person to reach a young person. What we found is that it actually took on average 15 minutes to track somebody down by phone. When you have a really limited staff with low capacity and they have 8,000 applicants or more, it becomes a really big barrier to doing the things that they could be doing otherwise, [such as] youth outreach or improving the program.



## What did you change?

Step No. 1 was let's move notification away from a phone and into the inbox. In 2016, after introducing text-based job offer notifications, 56 percent more job offers were accepted than in 2015, which was kind of incredible.

## SuccessLink uses the Gale-Shapley algorithm. What is that?

Historically, the city of Boston was placing young people with available jobs with lists. They had lists of available jobs and they had lists of young people who wanted a job, but that didn't take into consideration some really important details that young people had told us [in focus groups] that they cared about, such as the type of work and how long it takes to get to the job. The last thing we looked at was what is the existing distribution of jobs in their neighborhood, because we could see through their application where they live. We took all of these inputs, which really were designed by the youths themselves, and we turned that into a matching algorithm. This was an algorithm that was adapted from the Gale-Shapley algorithm, which was originally used for, I think, medical residency placements. It's saying we're going to give the largest number of the highest-quality jobs to the most people possible. We did that but we also took into consideration these particular inputs that young people had expressed, so the end of that algorithm is essentially a meaningful job offer.

## How long did this take?

This partnership was really two years long. At the end of it, we handed off the software to the city of Boston and the Department of Innovation and Technology has internalized it, and they're running it as their own product under the digital services team.

## CASE STUDY #3

# ICE Takes on Criminals With Analytics



### JON MCENTEE

*Acting Director of the Borders and Maritime Security Division at the Homeland Security Department's Science and Technology Directorate*

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**U.S. Immigration and Customs Enforcement (ICE) is using a software analytics program called Igloo to fight human smuggling and other illegal activities.**

- + When ICE asked the Homeland Security Department's Science and Technology Directorate for help with improving agents' capability to fight human smuggling, it got Igloo, a data analytics software program.
- + Igloo takes previously manual processes and applies machine learning, taking the time agents spend on them from hours to seconds.
- + Rather than reinvent the wheel, S&T created Igloo by integrating a Sandia National Labs capability into its ICE customer environment.

## What problem is Igloo helping to solve?

We're the research and development arm for the department. We identify gaps across the law enforcement community and we develop single projects that go to benefit multiple components. That's how Igloo was originated. It originated with ICE providing us the capability gap to help with human smuggling, financial fraud and transactions, and child exploitation. We started this project about a year ago.

## How did special investigators sift through data before this technology?

Manually. It's as simple as that. The actual data that we collect is sensitive. I can't discuss that, [but] think about any report that you have to fill out for any particular reason and the information associated with it. [With Igloo,] instead of manually going through it one by one, trying to connect the dots, we use machine learning to do that for us. Whereas a lot of things were done manually in the past, now they're digitized.

## Doing it manually must have taken a lot of time. What's the time savings with the technology?

It was hours to seconds.

## That frees agents to do more important tasks, right?

It frees them up to work on higher-priority items. You eliminate a lot of the human error involved, and that's what came about in the old way of performing the function. We all have bad hair days, right? One day you wake up and if you didn't have your cup of coffee, you may have missed something on a piece of paper.

## What other benefits are you seeing from Igloo?

It has led to law enforcement action that had probably previously not been seen. It would have taken a lot longer to find.

## Is Igloo based on a commercial solution or did you develop it in-house?

We actually leveraged a Department of Energy capability from Sandia National Labs and integrated it into our ICE customer environment. The reason that this is important is we're foraging across the industry and the federal government communities to see what's already available and integrating that capability into our customer's environment. Because we do have a very limited budget. Things like this are very appealing. We can get them done quickly and out the door and in the field.

This was where we leveraged the Economy Act, where [Defense Department] and DOE entities can use what they've already invested in, and this was a very, very small investment amount to start with because Sandia National Labs and the Department of Energy had already spent and invested quite a bit of money in it. That's part of our tech foraging. We just used what was already there, and we sat down with our operators and changed the user interfaces and the type of information that went into it. Really, it's limited to what data you can put into it. It's only as good as the data that's entered.

## It's in beta form. What's the timeline for fully deploying it?

It's prototyped, and we're still developing it. Since we're a services organization, we don't sustain capability in the field. We prove concepts. We prove that the capability is more efficient or more effective for our operators or agents, and then the big leap for us is what we call transition – getting that capability fielded. It's a lot more difficult than you think because it involves a lot of planning with, in this case, ICE. ICE has the money to procure and sustain capabilities, and there's an internal fiscal discipline that we follow within DHS called resource allocation planning, and so we need to make sure that there are programs of record in place that could accept the technology and have a home for it when we're done. That planning and that budgeting takes time. That's what we're going through now.

## Is there a change management strategy to communicate the benefits of Igloo to field workers and how it will affect the way they work?

It does take a little bit of culture change, and that's why it's important that the operators are leading the charge and not us. They're the ones that have to own it. They need to be the owners up front. They need to determine where it fits into their larger strategy. This is not their only effort, I'm sure, within their entity working on data analytics.

## S&T plans to transition Igloo to other ICE offices, and it could help multiple types of law enforcement officers. What other use cases fit Igloo?

You can use it across the board. We're looking at it not just for human smuggling, but we're looking at it for financial fraud. I think that we're also looking at commerce and trade. It's a matter of the data that you have that can feed it. Its results are limitless.



## Big Data & Analytics

Data Warehouse Design  
Hadoop & Elastic Cluster Implementation  
AI, Machine Learning & Data Visualization  
Anomaly Detection & Predictive Analytics



## Cyber Security

Insider Threat & Digital Forensics  
Application & Software Assurance  
Enterprise Security Architecture  
Certification & Accreditation



## Infrastructure

Design, Acquire and Implement  
Hardware & Software Integration  
System Administration & Operations  
Life Cycle Management



## Managed Print Services

Fleet Optimization  
Supplies Replenishment  
Secure Pull Printing  
Workflow Solutions

# Targeted Solutions

IT Products, Services  
& Solutions Specializing  
in Cyber Security & Big Data

## INDUSTRY SPOTLIGHT

# Overcoming America's Opioid Crisis With Data Analytics

*An interview with Mark Hughes, Vice President, Strategic Programs and Stephen Moore, Vice President, Engineering, AlphaSix Corporation*

The flood of data facing government is growing so swiftly that it threatens to drown any actionable information available inside it. So how do agencies discover useful insights among the drops in a bigger data ocean?

Data analytics helps organizations collect, examine and recognize valuable knowledge despite exponentially growing information. These revelations produce more accurate predictions across fields including cybersecurity, drug diversion prevention, finance and health.

In a recent interview with GovLoop, Mark Hughes, Vice President, Strategic Programs and Stephen Moore, Vice President, Engineering at AlphaSix Corporation explained data analytics' power for combating problems like America's raging opioid crisis. AlphaSix Corporation is an IT services and solutions provider specializing in big data and cybersecurity.

Opioids' addictive properties – and the resulting health and financial damage – is ravaging communities nationwide. Criminal, health and medical data offers the potential for combating this challenge, but only if agency officials have the right solutions to harness, organize, and synthesize the data.

“Every application, networking device and operating system is spitting out data nowadays,” Moore said. “Operationalizing that data and turning it into knowledge is the real challenge for the government. It's impossible for humans to go through and make sense of that data without analytics.”

The opioid epidemic impacts the entire U.S., meaning governments at all levels must assist with stopping it. However, data from these stakeholders is often isolated, leaving crucial insights hidden from community leaders.

“To get a true picture of what's going on, the more data from different sources you have, the better the picture you're going to have, and the better information you're able to derive from it,” Moore said. “Not having access to data can be detrimental to the overall mission of government.”

Data analytics tools like AlphaSix Corporation's Qato collect the data from all these sources, centralizing it in one location for easier analysis. Visualization tools then help analysts find patterns quicker, such as how patient, pharmacy and physician relationships may drive a community's opioid abuse.

“One of the strengths of visualization is it allows more freeform exploration,” Moore said. “You can find things that you weren't

necessarily looking for beforehand. It's also a great way to encapsulate a large amount of data into a more consumable format for humans.”

Data analytics helps combat opioid abuse by detecting anomalies in information from various sources across local, state and federal agencies. For example, tools like Qato can examine opioid manufacturing, distribution and sales for potential abuse patterns.

“There are all kinds of interesting analytics that you could apply to help identify anomalies to help your investigators identify who they need to investigate,” Moore said. “But to do that, you need to have the data. If the different groups can't agree on bringing all that data together, then it's a missed opportunity.”

Data anomaly detection helps stop opioid abuse by noticing recurring behavior from individuals like doctors.

“If you've got doctors writing opioid prescriptions all over the country, maybe that's suspicious,” Moore said. “Or if you've got a doctor who lives in a town with a population of 10,000 people that's writing more prescriptions for opioids than a doctor in an area with the population of Manhattan, then maybe that's suspicious.”

Data analytics can also detect anomalies across larger areas, like entire opioid distribution chains.

“You can put together a picture of who's diverting,” Moore said. “If a manufacturer sells X number of drugs to a distributor, and then the distributor only reports selling half of that, what happened to the other half?”

Governments can target opioid abuse patterns unearthed by data analytics to reduce addiction, shrink related health costs and end associated crime. Citizens lead happier, healthier lives as their communities heal and refocus resources on other improvements.

Working with experts in the field of pharmaceutical diversion, AlphaSix Corporation created an application that merged pharmaceutical manufacturing data with prescription drug monitoring programs (PDMPs) to reduce opioid abuse. The drug database regulated by the federal government could be paired with state PDMPs to observe opioid diversion nationwide. The program's actionable insights could help government officials best fight opioids in communities across the U.S.

“We see ourselves as a one-stop shop giving you everything you need to do big data analytics,” Hughes said of AlphaSix Corporation. “We're able to provide folks with the platforms, software and services to allow their analysts to look at their data and turn it into knowledge.”



## CASE STUDY #4

# North Carolina Takes an Enterprise Approach to Decision-Making



### JOHN CORRELLUS

*Deputy State Chief Information Officer  
and Chief Data Officer*

**Part of North Carolina's Department of Information Technology, the Government Data Analytics Center (GDAC) works with individual agencies and creates statewide strategies to drive data-based decision-making.**

- + GDAC helps individual state agencies solve problems with analytics, and it also sets statewide data strategy.
- + The center's first effort is Criminal Justice Law Enforcement Data Services, an automated law enforcement data system that more than 25,000 professionals use.
- + To better understand state data, GDAC created the Data Asset Catalog Service to collect business and technical metadata about the state's critical data assets.

## How did the center come to be?

It's been around for about 10 years under different names. It really started out in the State Controller's Office. They had done a statewide data integration plan, and that really showed how we could be better leveraging our data. Shortly after they had done the plan, there were a couple of high-profile murders in the state of college students. It showed an opportunity to leverage that plan and put it to use by integrating offender data. That became what is now known as [Criminal Justice Law Enforcement Data Services], which is a criminal justice, law enforcement automated data system. It started off as a pilot and grew and expanded to integrating a significant amount of offender data. I think it's about 16 sources right now and over 25,000 criminal professionals are leveraging that system in the state today. So, when you think about that, that was a real business issue.

## What does GDAC do today?

July 2014 is when GDAC transitioned from the controller's office to the state CIO's office, which is now called the Department of Information Technology. It was doing more point solutions at that point. When it moved over to the state CIO's office, it really became more of an enterprise program and it expanded exponentially. Today we have over 30 programs and projects. We have healthcare initiatives, child safety, more criminal justice, longitudinal data management, transparency, performance — just a whole slew of things, and it's really been based on the success of starting small but thinking enterprise and extending all these services and growing these services as we see value.

## GDAC has a master data management plan to document North Carolina's data sources, definitions and quality issues. Can you elaborate on that?

We did an enterprise data management strategy and implementation plan that we completed late last fall. That provided us some recommendations and assessment of the enterprise data needs. One recommendation was we need to understand our data better, so we are working on what's called a Data Asset Catalog Service (DACS). This is where we're collecting business and technical metadata about the state's critical data assets, working with the

state's agencies and partnerships. We are working with our Department of Motor Vehicles, Department of Commerce and other agencies that have signed agreements to collaboratively work with us to make sure that we have cataloged those assets because the data is really valuable, and whenever you want to do a data analytics effort, you need to understand what the data is, how it was produced and how it can be utilized. DACS is really the inventory; it's not a one-time deal working with our agency partners. That's happening today. That's implemented.

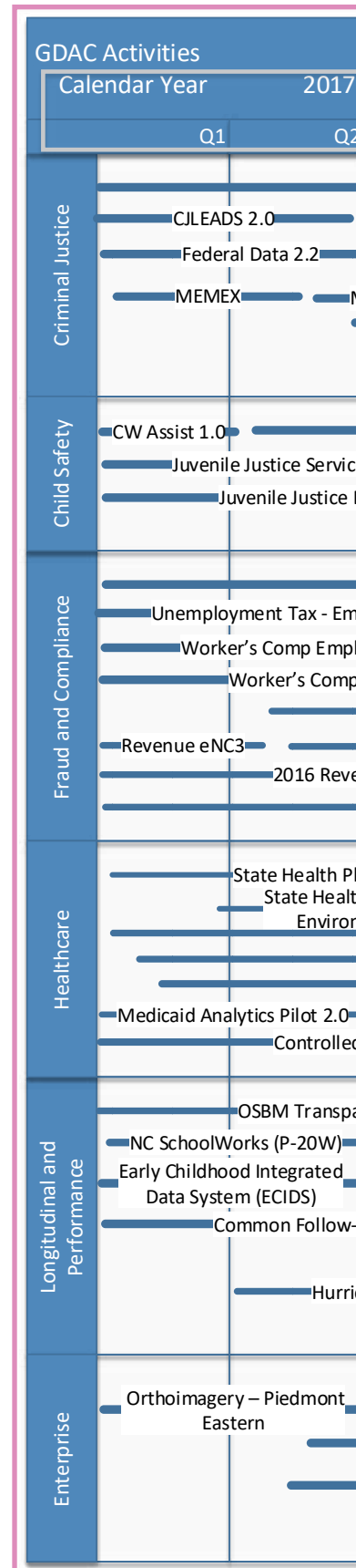
That was one thing that came out of that enterprise data management plan. The other was around what I would call data-as-a-service. We have a lot of point-to-point data connections. We can do a much better job from an enterprise perspective if we take a data-as-a-service approach and develop APIs and have a platform to deliver those APIs. We're looking to implement that early 2019.

## How does this lay a foundation for data analytics?

We all want to talk about data analytics, but the foundation for the future is knowing your data. So, if we approach a data analytics problem or a business problem that we think data analytics will help us with, most of the time is spent understanding the data, doing exploratory data analysis on that data. It's not creating the analytics. The foundation is you need to know the data and how it can be used. That's just absolutely critical.

## How does analytics make the state more effective and efficient?

How we're using data analytics is just about improving services and outcomes. When you think about a government entity, the reason they have data is to hopefully confirm how well services are being delivered and what some of those options are. Leaders have made significant investments in data analytics, and the whole reason is they see it as valuable in making more informed or evidence-based policy decisions, so it's not just based on what you think you know, but what you can prove you know. When you think about the Legislature, the governor, the secretaries and the organizations, they're responsible for ensuring good government services to citizens. Leveraging the data, measuring the data, improving outcomes, making decisions based on evidence, not based on gut feel is important.



# RESULTS

## Outcomes

**40%** Reduced Time-to-Insights

**486** Self Service Reports    **238** Active Users

**\$1M** Savings per Year

Reusable Performance Management Framework    Automation

## Impact (example)

**Substance Use Disorder**  
Screening, Brief Intervention, and Referral to Treatment (SBIRT)

**Number of Patients**

Year	2014	2015	2016
Count	229,288	457,132	716,677

**Mental Health**  
Screened for Depression and Follow-up Plan

**Estimated % Patients Screened**

Year	2014	2015	2016
Percentage	38.83%	50.61%	60.34%

# VIS

Integrate P...  
machine learn...

Users start...  
more

Data literacy b...  
skill of the H...

## CASE STUDY #5

# HRSA Improves the Health Data Collection Process

**ADRIANE BURTON**

*HRSA Chief Information Officer*



## COMES

### HRSA Balanced Scorecard

Scorecard maps HRSA strategic objectives into performance metrics in Quality and Timeliness, Grantee Satisfaction, Employee Satisfaction, and...

#### Usage:

- How is HRSA's progress in the areas of customer and employee satisfaction?
- What is the impact of a program's funding across three...

Timeliness and Quality (updated Quarterly/Annually)

Function	Performance Measure	Year					
		2015 FY 15 year	Q1	Q2	Q3	Q4	2016 FY 16 year
SWIFT Correspondence and Clearances	OS Correspondence and Clearance Time	96.7% ★	96.7% ★	95.0% ★	98.0% ★	95.6% ★	96.3% ★
	HRSA Correspondence and Clearance Time			90.0% ★	96.0% ★		93.0% ★
Reports to Congress Submitted on Schedule	Reports to Congress Submitted on Schedule			87.0% ●	80.0% ●	75.0% ●	
	NOFO Release with 60 Days or More for Application Submission	69.0% ●					99.0% ★
Funding Opportunity Announcements (FOA) & Awards	Funding Memo Submission to OFAM (45 days or more before the start date) - Continuation	53.0% ●			58.5% ●	64.3% ●	
	Notice of Awards Release Date (15 days or more before the start date) - excludes special notifications - Continuation	43.0% ●	93.6% ★	80.4% ●	84.0% ●	85.3% ●	84.0% ●
	Notice of Awards Release Date (15 days or more before the start date) - excludes special notifications - New and Competing	57.0% ●			41.2% ●	25.1% ●	37.0% ●
Human Resources	Vacancy announcements posted within 2 days of program review/Approval of vacancy announcement draft	81.0% ●					99.9% ★
	Selections Made Within 30 days of Selecting Official Receiving Certificate	59.0% ●					42.6% ●

Using a new Data Analytics Platform, the Health Resources and Services Administration (HRSA) is speeding up the grant-making and management process, cutting performance reporting burdens and ensuring data quality.

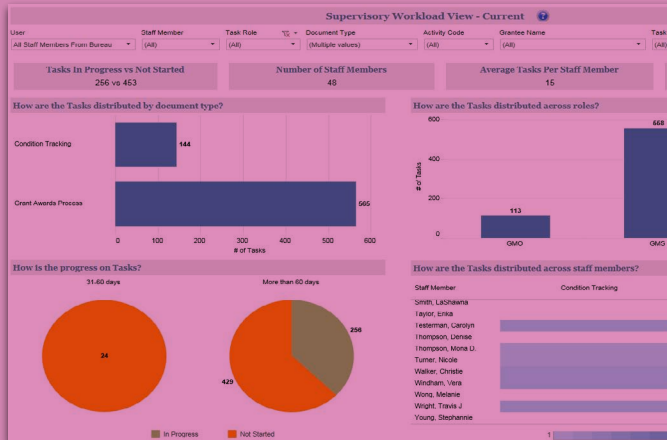
- + With the platform, HRSA aims to improve its use and connection of data, and to reduce the data-collection burden on Health Center Program grantees.
- + Last year, HRSA processed queries using self-service dashboards rather than ad hoc reports, which saved about 40 percent in time in terms of obtaining the needed information.
- + Future plans include migrating the platform to the cloud and using predictive analytics.

### Workload Management Dashboard

Monitor staff workload more effectively. Highlight tasks comparison and the age of pending tasks, distribution of tasks by roles and document type...

#### Usage:

- What is the progress of pending tasks?
- How are tasks that are not started distributed across staff members?



Note: Dashb...



## What problem were you looking to solve with the Data Analytics Platform?

HRSA is part of Health and Human Services Department, and our mission is to improve access to health care by strengthening the health workforce, building healthy communities and achieving health equity. We have over 90 health programs, and so our platform was really designed on how we can improve our use of data within HRSA and our ability to start connecting the dots between the various programs as well as within the program. In addition, we were trying to reduce the burden to our grantees in terms of the annual data collection process for our health centers.

## How did things work before the platform?

In the past, we had various static reports that in some instances may not have provided the information that staff wanted, and so what would happen is they would have to really generate multiple static reports and try to piece them together, or what we would have is that folks would come and request specific ad hoc reports and then it would take a while to actually work with the vendors to generate these ad hoc reports. With the data analytics capabilities that we implemented, people are able to generate their own reports.

## How might someone use it?

For our health center programs, we have over 1,500 grantees, and 26 million people actually use our health center programs. Each year the grantees must provide annual performance reports for the Health Center Program, and we developed a new way to collect performance data from our health center grantees. We created a highly reusable and extensible framework to collect data through multiple mechanisms like the web, [Microsoft] Excel and offline HTML files. This framework is built on .NET Core, Angular and REST [application programming interfaces], and the system stores the data in JSON format, and we use FlexRules, which is integrated in a data collection system to ensure data quality as well as integrity because that's very important. This data collection framework also supports qualitative review to assure data quality, because in the past, the data was submitted by the health centers, and then we had a group of contractors that we hired to review the data for data quality purposes.

What we did is not only did we implement the data collection process, we have a data processing engine that's integrated into the data collection system to transform the JSON data using a combination of [extract, transform, load] and APIs to create datasets. Then we implemented Tableau in our system using REST APIs to provide embedded analytics in our grant

performance reporting system, and we created dashboards for senior management to provide better data-driven insights. We have provided access to business users to generate reports of their own choice using self-service or we have enterprise dashboards as well. This has promoted collaborations among the business units within HRSA. So, when we developed the dashboard for one bureau and office, we demonstrate that to other bureaus and offices, and a light bulb goes off and they come up with new ideas for a dashboard across the organization.

## How much time do employees save now?


Instead of using ad hoc reports, we are able to use self-service dashboards, which is saving HRSA 40 percent in time in terms of obtaining the needed information. What happens is once we set up a data mart and identify all these different fields, folks have the flexibility of using those data marts to really create their own different reports that they would like to see.

## What other metrics illustrate the platform's success?

We performed a pilot for this health center, Uniform Data System Modernization Initiative, and we believe that the reduction in burden would be around 88 percent, and this just based on a pilot of six of our health centers. Where they used to spend 15 hours, it will now take a little under two hours to actually submit the information.

## What adjustments and changes are you looking to make moving forward?

We want to migrate to the cloud for better scalability for the system. We would like to enhance our platform to support predictive analytics and provide an ability for program leadership to see the impact of their decisions ahead of time. An example would be a risk monitoring tool – the ability to provide a risk score for an existing grantee or organization across our programs and allow program leadership to make appropriate funding decisions. That would go hand in hand with the President's Management Agenda on better oversight of grants. We would like to automate the statistical analysis to the extent possible ... to reduce the manual effort spent analyzing that data, and we would like to integrate machine learning and artificial intelligence models for better insights and foresights. We want to find more natural ways for HRSA staff to interface with the system, for them to use natural language so they can ask specific questions and then the data just pops up on the screen. We've already integrated Alexa with the system in terms of a pilot.

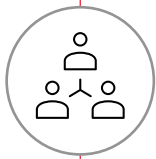


# Empowering Modern **Digital** Government



## **4,000 Organizations**

across the globe use Granicus every day to improve government transparency and engage citizens.



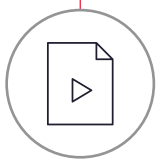
## **185 MILLION**

citizens in the GovDelivery Network: subscribed to receive targeted government communications.



## **40 OF THE 50**

most populous U.S. cities use Granicus tools including New York, Chicago & Los Angeles.



## **5 MILLION+**

government legislative media files are being accessed by citizens.

Granicus offers a platform of secure, built-for-government solutions that help modern government organizations digitize their otherwise inefficient and cumbersome processes. Trusted by over 4,000 organizations around the world, modern governments are benefiting from time and cost savings, freeing up more time for person-to-person interactions and the ability to enhance the level of civic engagement and accessibility for citizens.

Take the first step. Contact us to set up a meeting at [info@granicus.com](mailto:info@granicus.com).

## INDUSTRY SPOTLIGHT

# 3 Web Analytics Myths and Misconceptions

*An interview with Martin Lind, Vice President, Services and Business Development at Vision Internet by Granicus*

Visitors to a government website are on a mission to complete a task and not there to browse or shop, so your site should offer visitors a tailored experience that suits them. With proper use of website analytics you can!

To understand how government can use website analytics to create better citizen experiences, GovLoop sat down with Martin Lind, Vice President at Vision Internet by Granicus, a company that provides digital solutions to improve governments online services, web presence, and communications strategies.

Lind referenced this year's [Granicus Benchmark Report](#), including top metrics for email, social media, and web. Among the many findings, three website metrics stood out as critical to monitor: entrance pages, bounce rates, and time spent on page. Each can dispel common myths about government websites.

### **Myth #1: Most people land on my homepage first.**

Your homepage should be well branded and easily navigable, but it's infrequently the first page your visitors are landing on. In fact, the study showed that only 35 percent of visitors enter a website through the homepage – and that percentage is even lower (21 percent) for those coming to your website via mobile.

Because most of your traffic likely enters through your interior pages, it's critically important to focus on them when looking at your analytics.

You can start by identifying your top 50 most trafficked pages and determine which ones serve as entrance pages. Consider these top entrance pages as “mini-homepages” for people who come directly to these pages from a search engine to complete a specific task. Then, determine if these pages are performing as well as you'd like them to: “How do these pages look? Is navigation intuitive? Is the content relevant? Are tasks self-contained within the page so customers can quickly complete an action?” Lind asked.

### **Myth #2: A high bounce rate is bad.**

Bounce rates are defined as single-page visits: your customer enters and exits from the same page without visiting any other pages. But not all bounce rates are created equal. A high bounce rate can mean the page is performing perfectly: you answered the question that brought them to that page.

“Local government websites typically see higher bounce rates since content tends to be more task-oriented like paying bills,” Lind said. “In fact, pages on local government websites typically see bounce rates in the 40 to 60 percent range. In this case, a higher bounce rate means that customers are finding what they need immediately, completing their task and leaving without having to visit any other pages. Alternatively, if the task is spread out over many pages, you'll hopefully see a very low bounce rate.”

### **Myth #3: More time on a page means higher engagement.**

More time spent on a webpage is not necessarily a good thing for a government website, cautions Lind. For example, if the page is for a task that should only take a few minutes, but your analytics show that it averages ten minutes, it likely means that your customers do not understand the content you created.

To improve the usefulness of interior pages for your visitors, Lind advised spending time seeing if there are particular interior pages that seem to have a higher-than-average time spent. If so, ask yourself: does this page make it easy to find what a citizen may be looking for? If not, determine how those pages can be improved to help your citizens more efficiently complete tasks.

Granicus offers a CMS tool for government websites that makes it easy for citizens to stay informed, find popular services, complete transactions, engage and get involved – from any device, anytime, anywhere.

“The websites we build for government agencies are data-driven, collaborative, efficient and measured,” Lind said.

Government communications leaders know that creating positive relationships with customers and improving the experience of website visitors begins with good content. By properly using data and analytics to better understand what parts of your website need improving, you can better inform your citizens and maintain your agency's brand through targeted and relevant content.

# 5 Steps to Implementing Data Analytics

Convinced that data analytics is the way to go to make improvements at your agency? It can seem like a daunting undertaking, but it doesn't have to be. Start with a single project that has a high likelihood of success to win buy-in from agency leaders and your coworkers. Here are five key steps to developing an analytics project, according to the [Civic Analytics Network](#), a group of urban Chief Data Officers created by Harvard University's Ash Center.

- 1. Identify the problem.** Data-driven policymaking is not about using data for the sake of using data. It is important to ensure that the project's objective meets agency mission.
- 2. Assess data readiness.** There are several success factors that agencies must consider when developing an analytics project. They include first determining if there is a need for data analytics. If so, are the right personnel involved, are data collection and storage practices in place, and is there stakeholder buy-in within and outside of the department or agency?
- 3. Scope the project.** Check out the [Data Science Project Scoping Guide](#) from the University of Chicago's Center for Data Science and Public Policy. It offers a four-step process for project assessment. The first step is to define the project's goals. Next, determine the actions that the project will inform, then assess what data is accessible and what's needed, and finally, decide what type of analysis is needed.
- 4. Pilot the project.** This trial-and-error phase can yield important insights for improving performance when it is time to implement the project on a larger scale.
- 5. Implement and scale the model.** Given the variability of structures, budgets and objectives for analytics projects, identifying general practices for scaling these projects is challenging. As more data-driven projects mature and are replicated, insights into how to improve and scale these leading projects will grow.

# Conclusion

Agencies at all levels of government are using data analytics to serve needs ranging from law enforcement to job placement and grant-making. Government workers are seeing their time spent more on mission-critical tasks than on manual data entry and calculations, making both them and the agencies they work for more effective and efficient.

As tools and technologies and data itself continues to evolve, the use cases for data analytics will also continue to grow. That's why it's important for agencies to begin the process of understanding the data they have and what data they may need, so that they can begin to make more informed decisions.

But it's more than data and technology. Agencies must educate their employees about data and new ways to use it, and hire employees skilled in data science. The result will be greater innovation on applications for analytics beyond original initiatives. Agencies that get overwhelmed by the options or otherwise fall behind are at risk of missing out on opportunities to be more efficient and effective.

## About GovLoop

GovLoop's mission is to inspire public-sector professionals by serving as the knowledge network for government. GovLoop connects more than 270,000 members, fostering cross-government collaboration, solving common problems and advancing government careers. GovLoop is headquartered in Washington, D.C., with a team of dedicated professionals who share a commitment to the public sector.

For more information about this report, please reach out to [info@govloop.com](mailto:info@govloop.com).

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## Thank You

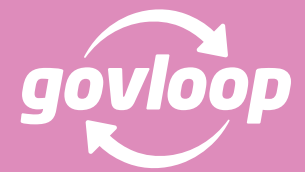
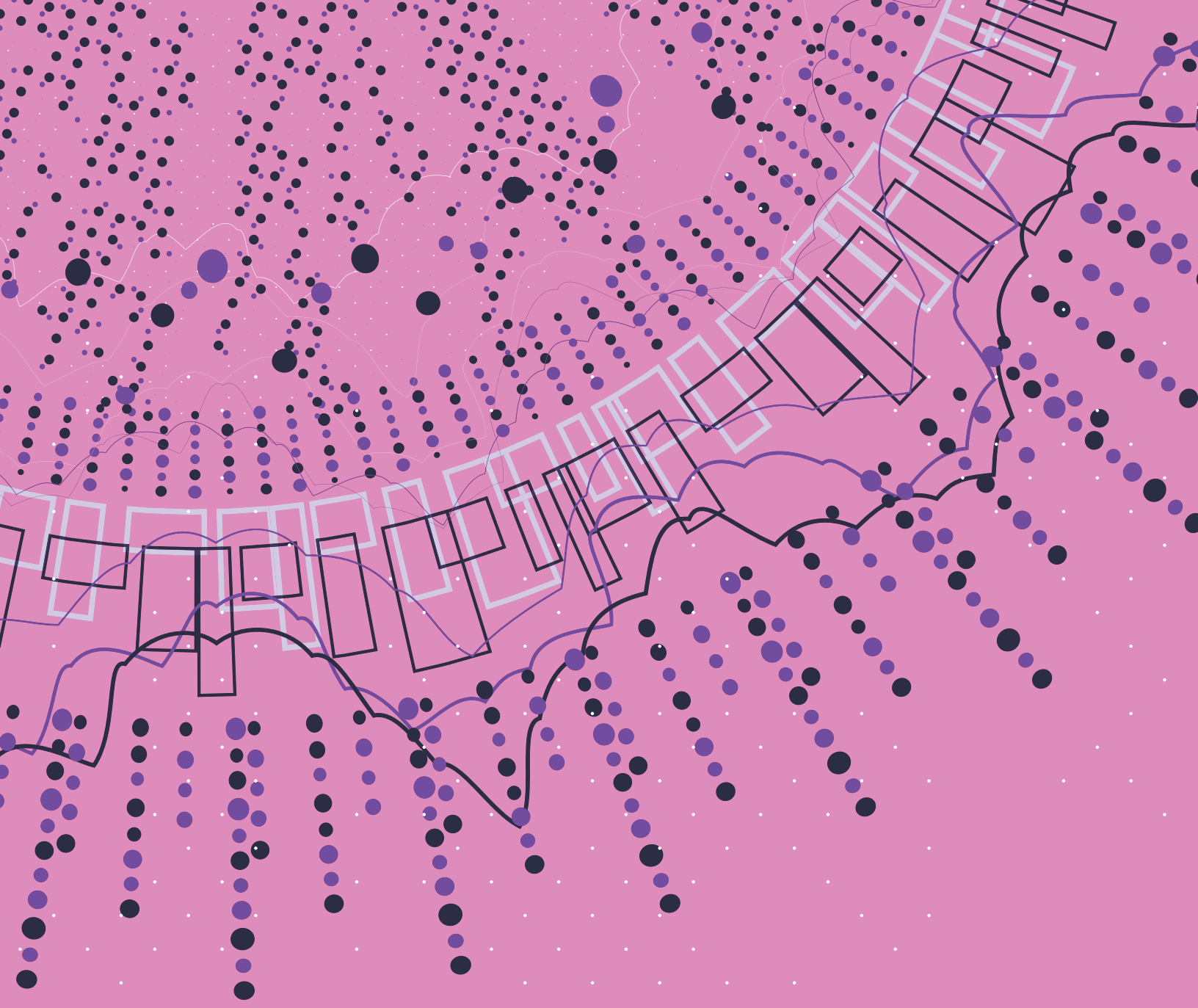
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