مركز محمد بن راشد
للابتكار الحكومي
MOHAMMED BIN RASHID CENTRE
FOR GOVERNMENT INNOVATION

ابتكر
IBTEKR

How to Gov Series

How to Create a Data Driven Culture
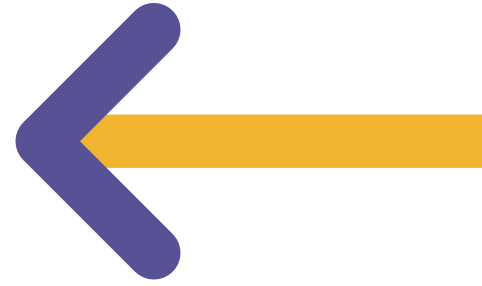
03

**GOVERNMENT OF
UNITED ARAB EMIRATES**

Info@pmo.gov.ae

TABLE OF CONTENTS

Chapter Seven

07

How to Create a Data-Driven Culture

Exploding quantities of data have the potential to fuel a new era of fact-based innovation in corporations, backing up new ideas with solid evidence. Buoyed by hopes of better satisfying customers, streamlining operations, and clarifying strategy, the private sector has for the past decade amassed data, invested in technologies, and paid handsomely for analytical talent. Yet for the public sector a strong, data-driven culture remains elusive, and data are rarely the universal basis for decision making.

Why is it so hard?

The biggest obstacles to creating data-based public service aren't technical; they're cultural. It is simple enough to describe how to inject data into a decision-making process. It is far harder to make this normal, even automatic, for employees — a shift in mindset that presents a daunting challenge. So, we've distilled 8 data commandments to help create and sustain a culture with data at its core.

1. Data-driven culture starts at the (very) top.

Organizations with strong data-driven cultures tend have leaders who set an expectation that decisions must be anchored in data — that this is normal, not novel or exceptional. They lead through example. For examples, senior executives can spend 30 minutes at the start of meetings reading detailed summaries of proposals and their supporting facts, so that they can take evidence-based actions. These practices propagate downwards, as employees who want to be taken seriously have to communicate with senior leaders on their terms and in their language. The example set by a few at the top can catalyze substantial shifts in organization-wide norms.

2. Choose metrics with care.

Leaders can exert a powerful effect on behavior by artfully choosing what to measure and what metrics they expect employees to use. Suppose a government organization can save costs by anticipating damages on the roads. Well, there's a metric for that: predictive analytics through

time and traffic flow. So, a team should continuously make explicit predictions about the possibility and magnitude of potential road damage. It should also track the quality of those predictions – they will steadily improve! Let's take an example of a social protection program that wants its key beneficiaries to receive benefits as timely and seamlessly as possible. But it has only gathered aggregated statistics on social protection delivery, so it knows little about who is receiving what and the service quality they experience. By creating detailed metrics on citizens' experiences, the department can make a sophisticated quantitative analysis of the program on citizen life. To do this, the program needs to have a much tighter grip on the consumption of its services than is typically the case — and that's precisely the point.

3. Don't pigeonhole your data scientists.
Data scientists are often sequestered within organizations, with the result that they and senior leaders know too little about each another. Analytics can't survive or provide value if it operates separately from the rest of the organization. Those who have addressed this challenge successfully have generally done so in two ways. The first tactic is to make any boundaries between the organization and the data scientists highly porous. The second is to drag data science closer to the organization, by pull itself toward data science, chiefly by insisting that employees are code-literate and conceptually fluent in quantitative topics. Senior leaders don't need to be reborn as machine-learning engineers. But leaders of data-centric organizations cannot remain ignorant of the language of data.

4. Fix basic data-access issues quickly.
By far the most common complaint we hear is that people in different parts of an organization struggle to obtain even the most basic data. Curiously, this situation persists despite a spate of efforts to democratize access to data within organizations. Starved of information, analysts don't do a great deal of analysis, and it's impossible for a data-driven culture to take root, let alone flourish.

5. Quantify uncertainty.
Everyone accepts that absolute certainty is impossible. Yet most leaders continue to ask their teams for answers without a corresponding measure of confidence. They're missing a trick. Requiring teams to be explicit and quantitative about their levels of uncertainty forces decision makers to grapple directly with potential sources of uncertainty: Is the data reliable? Are there too few examples

for a reliable model? Also, compelling teams to understand this uncertainty pushes organizations to run experiments, which can generate positive outcomes (both in terms of solutions and improved processes).

6. Specialized training should be offered just in time.

Many organizations invest in "big bang" training efforts, only for employees to rapidly forget what they've learned if they haven't put it to use right away. So, while basic data skills should be part of fundamental training, it is more effective to train staff in specialized analytical concepts and tooling just before these are needed — say, for a proof of concept.

7. Use analytics to help employees, not just citizens.

It's easy to forget the potential role of data fluency in making employees happier. But empowering employees to wrangle data themselves can do this, as it enables them to follow the advice in a memorably titled book on programming: Automate the Boring Stuff with Python. If the idea of learning new skills to better handle data is presented in the abstract, few employees will get excited enough to persevere and revamp their work. But if the immediate goals directly benefit them — by saving time, helping avoid rework, or fetching frequently-needed information — then a chore becomes a choice.

8. Get in the habit of explaining analytical choices.

For most analytical problems, there's rarely a single, correct approach. Instead, data scientists must make choices with different tradeoffs. So it's a good idea to ask teams how they approached a problem, what alternatives they considered, what they understood the tradeoffs to be, and why they chose one approach over another. Doing this as a matter of course gives teams a deeper understanding of the approaches and often prompts them to consider a wider set of alternatives or to rethink fundamental assumptions.

Data can provide a form of evidence to back up hypotheses, giving managers the confidence to jump into new areas and processes without taking a leap in the dark. But simply aspiring to be data-driven is not enough. To be driven by data, you need to develop cultures in which this mindset can flourish. Leaders can promote this shift through example, by practicing new habits and creating expectations for what it really means to root decisions in data.

Chapter Seven

08

Policy Recommendations for Implementing Analytics

From improving public health outcomes to supporting safer transportation systems, analytics can offer new insights and improvements to governance across core issue areas. However, there are some enabling factors needed for successful use of data analytics. The following are some policy recommendations that could help:

1. Produce an Open Data Policy Roadmap

Adopting an open data policy can be a boon to rapidly, transparently, and collaboratively developing comprehensive analytics projects. Open data policies and portals will enable you to operate with greater transparency to the public and to connect them directly to external researchers, algorithms, and/or datasets that can support more effective analytics project development. If advanced data use is a few steps down the road, crafting an open data roadmap can help you become more data-savvy to build towards future open data policy conversations.

2. Create Programs and Job Descriptions that Promote Broad Data Literacy

By creating job descriptions and new frameworks for programs to appeal to data scientists considering positions outside of government, cities can attract dynamic,

data-literate personnel to embed and distribute data skills at various levels within city government. Whether it is creating a Chief Data Officer (CDO) position, establishing an analytics team, or simply embedding a data scientist within a department, establishing a role for data expertise with the support of senior leadership can enable your organization to develop the analytics projects that you need most. In addition to bringing in data champions and expertise, you can also improve internal capacities by designing training programs to provide critical professional development opportunities to personnel. San Francisco's SF Data Academy, which provides a pathway for its city employees to receive continuous professional development focused on data skills and analytics from within government, is a leading example in city-level analytics training programs.

3. Incentivize and Enable Cross Departmental Collaboration to Connect Personnel and Data Resources from across City Government

Developing an analytics project places data scientists in an internal consultant role, as they are typically situated outside of the department where that project will be implemented. It is important to establish pathways for data scientists to collaborate and receive input from the relevant department or agency, and,

simultaneously, pathways to incentivize personnel to engage with those new data science experts need to be established by supervisors. Government personnel operate in a bureaucracy and it is important for you to establish space in your day to day responsibilities to help your fellow colleagues "make the time" to engage on data-focused projects. By incentivizing department or agency personnel to connect with data scientists within communities, you can open up space within your day-to-day schedule and performance requirements to enable yourself to pursue analytics solutions to core issues. Beyond connecting departmental personnel to data scientists via substantive pathways for collaboration, cross-departmental engagement is also key. While many government departments maintain useful data repositories, that data is often siloed or incompatibly structured, rendering analyses with data maintained by various departments unfeasible. Establishing resources, tools, or policies to help streamline data standardization and warehousing can enable cross-departmental data sharing and is a critical facet of becoming a data-smart organization. In Los Angeles, GeoHub, the city's open data platform, offers unprecedented access to the city's highly integrated data resources. GeoHub is a publicly available platform designed to allow the public to explore, visualize, and download location-based open data. It also allows departments across the city to share, access, and collaboratively utilize other departments' data.

4. Adopt Enterprise-Wide Procedures that Facilitate Data-Driven Insights

Whatever methods you use to encourage data analytics, adopting an effective project management process means establishing a policy framework that enables data science experts to design analytics projects with the support of the organization's legal, administrative, and oversight capacities. To develop useful analytics projects, your organizations need enterprise-wide procedures, such as data usage practices, security protocols, or standardized legal and data sharing agreements. However, while these procedures can help streamline, stabilize, and embed data use practices across government, project managers must be mindful of potential blind spots, such as algorithmic biases, that may be unwittingly built into their models.

5. Link Civic Engagement with Data Analytics

Chief data officers may work within the walls of city hall, but they are members of a broader community and data ecosystem. The best analytics insights come when government data

use and civic engagement converge—after all, the public is the constituency for data analytics. Whether an organization is analyzing datasets available on an open data portal, developing a data visualization, or scoping a predictive analytics project, the results any of these efforts yield are better crafted when co-created with the public. By producing analytics models informed by direct input from residents or developed in partnership with a civic tech group, you will be able to garner better service improvements and data-driven insights.

6. Produce Guardrails to Protect Equity and Fairness Issues

Analytics is a practical tool for overcoming resource shortages and for distilling vast and disparate data, but it can also lead to the reproduction of biases and inequities under the banner of data science. Establishing standards of practice and mechanisms that ensure clear and continuous engagement with the public are critical components for your organization to maintain transparent, equitable governance, and for incorporating inclusive analytics practices into government.

Conclusion

25% Growth

How data are handled, managed, and analyzed is essential for the public and private sectors to manage day-to-day operations more efficiently and to make well-informed decisions to serve citizens and clients better. Considering that the problems to be solved are far more complex and multifaceted in the public than in the private sector, data analytics are seen as an unavoidable path that every public organization must take. There are multitudes of examples and practices that demonstrate how the public sector has benefited from the use of data analytics. For organizations in the public sector which are still reluctant and unready to deploy data analytics in their decision making, it is never too late to realize the gains of data analytics and to start from the basics.

Policy evaluations, education, and healthcare are examples of how government can use analytics to gain new levels of insight today. There are many additional ways to apply analytics to decision-making in the public sector. Making well-informed decisions can save lives, enable government agencies to make more efficient and impactful investment decisions, and work towards improving the lives of citizens. We hope that you and your organizations will be able to use this manual as a starting point on your data journey, and that you continue to work towards mastering the effective, efficient, and ethical use of data to make impactful decisions in your areas of work.