

Data-driven Delivery: Lessons from the O'Malley administration of Maryland

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Foreword by Simon Case

In December 2014, I joined the Institute for Government's visit to Governor O'Malley of Maryland. Over a packed few days, we had the opportunity to exchange ideas on measuring performance and delivering results in government with the Governor and his team.

Governor O'Malley has an extraordinary track-record as a 'deliverologist'. Slightly embarrassed now, I recall introducing him as a 'rock star of the deliverology world!' His passion for using data and evidence openly to drive decision making and accountability is seemingly boundless. First as Mayor of Baltimore and then in his two terms as Governor of Maryland, he has been the spearhead of the development of the 'stat' model as a tool for improving public services. Despite the obvious differences between state-level government in the US and central government in the UK, I found it endlessly fascinating to realise quite how similar the challenges we face are in terms of improving the effectiveness and efficiency of government.

O'Malley's commitment to transparency is striking. He has insisted that the data and analysis he uses to make decisions are available to the public. On the StateStat website, citizens of Maryland can scrutinise the same performance data that the Governor receives. Likewise, they can see the records of his stock-take meetings with department and agency heads. O'Malley has chosen to govern – and to succeed or fail against his goals – in the full gaze of the Baltimore and Maryland public. As O'Malley leaves office, it will be interesting to see whether his successor maintains a similar commitment to open decision making.

Successive governments in the UK have developed a range of tools and techniques for bringing better evidence into decision making and for giving citizens information about how government is performing. We have seen the various incarnations of the Prime Minister's Delivery Unit and Implementation Unit, public service agreements, business plans, What Works centres, an enormous open data programme under this Government and focused initiatives like myNHS (to name just a small number). As the debate about how best to organise government in the UK in the 21st Century goes on, we must make sure that our approaches are informed as much by the lessons from overseas as from our own history.

Following on from Jen Gold's earlier work on delivery organisations around the world,¹ this paper on the lessons from Maryland is an excellent addition to our collective understanding of what works when it comes to governing more effectively.

Simon Case
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Note by Peter Riddell

Martin O'Malley, the Governor of Maryland, visited the Institute for Government in mid-September for a fascinating and lively breakfast seminar with a group of our staff and invited guests. These included Sir Michael Barber, the inventor of 'deliverology', and several senior civil servants. This led to an invitation from Governor O'Malley for us to come to the US to see how his 'stat' model worked in practice.

Consequently, in mid-December a team from the Institute (Jen Gold, Gavin Freeguard and myself) plus Simon Case, the head of the Implementation Unit, and Andrew Carter and Zachary Wilcox from the Centre for Cities, visited Annapolis, state capital of Maryland. The Governor and his team were very generous with their time in explaining their approach, allowing us to sit in on one of his stocktakes with senior officials. Could this be a precedent for Whitehall? In addition, we met some of the team of Stephanie Rawlings-Blake, the current Mayor of Baltimore and visited the Office of Management and Budget, and the Urban Institute in Washington DC. The result is this report which marks an important addition to our understanding on data-driven delivery.

Peter Riddell
Director, Institute for Government



Governor O'Malley meets the delegation from the UK. Photograph: Executive Office of the Governor, 2014.

Introduction

Big policy announcements tend to dominate election campaigns. Details on how they are to be implemented do not.

This undermines public confidence. Recent polling by the Institute for Government found that only one in seven people believe that UK politicians know how they will go about implementing their campaign commitments. And only one in nine believe these commitments will actually be kept. This matters to voters. Two-thirds said they were more likely to vote for a political party that was clear about how they intended to turn their policy priorities into real changes on the ground.² As other Institute research has shown, politicians need to take implementation seriously from the start, even while developing their policies.³

Ways of ensuring that commitments are met and policies delivered vary between different administrations and between different jurisdictions.⁴ In the US, one politician who has gained a reputation for taking delivery seriously even on the campaign trail is Governor Martin O'Malley of Maryland. He has staked his reputation on his ability to pursue relentlessly his policy priorities in office by making government more effective. His use of the CitiStat initiative when Mayor of Baltimore and the StateStat initiative as Governor has put Maryland at the forefront of a growing move towards more open government and data-driven performance management.

O'Malley's administration has pointed to some impressive results. Maryland recovered 100% of the jobs it lost in the aftermath of the global financial crisis. Violent crime is at a 37-year low. Infant mortality has steadily fallen in recent years.⁵ As we approach the UK general election in May, O'Malley's data-driven delivery methods offer some useful lessons, as Simon Case highlights in his foreword to this publication.

This briefing note – based on our observations during a recent visit to Maryland – looks at the evolution of the 'stat' model in Maryland, how and why it works, and the challenges involved. As O'Malley's administration comes to an end, we also offer a reflection on how governments can approach the task of inheriting an existing performance management system.

History and evolution

The history of government driven by data-based performance management in the United States goes back to at least the 1970s, when Sunnyvale in California introduced a performance-based budget system.⁶ But in recent years, this approach to government has probably been most closely associated with Democratic politician Martin O'Malley, Mayor of Baltimore from 1999 to 2007 and then Governor of Maryland from 2007 to 2015.

As Mayor of Baltimore, O'Malley took a 'stat' model developed by the New York City Police Department (NYPD) and imported it into its Baltimore counterpart. Based on the four tenets of NYPD's Jack Maple (accurate and timely intelligence, effective tactics, rapid deployment, and relentless follow-up and assessment), the model was characterised by:

- assembling a small 'stat team' to collect and analyse Police Department data

- mobilising resources in response to identified problems (the so-called ‘cops on dots’ approach)
- Relentless progress chasing where the stat team continually scrutinise performance through monitoring data, undertaking field visits, and holding review meetings with officials. Where needed, developing co-designed action plans to get progress back on track.

Where O’Malley made a name for himself was in his subsequent decision to roll out this model across the entire city government in Baltimore. Known as ‘CitiStat’, the initiative sought to drive improvements in service provision in areas ranging from waste collection to road maintenance.

As Governor he brought an adapted version of CitiStat to Annapolis, proving the model could also work in state government despite the very different reality of administration at this level. Inspired by the UK’s Prime Minister’s Delivery Unit – which tracked the progress of a number of strategic priorities – his ‘StateStat’ initiative saw the introduction of strategic goals, such as job creation and education attainment, that his new central Stat team would help deliver (see Figures 1 and 2).⁷ O’Malley would also break new ground by opening the Stat process up to public scrutiny.

Figure 1: The evolution of the 'stat' model in Maryland under Martin O'Malley⁸

The stat model has proved to be especially popular with municipal governments across the United States. This uptake has also spurred the creation of regional networks of stat professionals sharing best practice, such as the [Mid Atlantic Stat Net](#) and New England Stat Net.

At the federal level adoption has been limited, but by no means non-existent. Stat models have appeared in individual departments – namely the Department of Housing and Urban Development’s HUDStat and the Federal Emergency Management Agency’s FEMASat. Federal agencies, including the Environmental Protection Agency, also support ChesapeakeStat – a cross-government initiative to track environmental restoration activities in and around Chesapeake Bay, modelled on O’Malley’s BayStat (see Figure 1).

Other federal initiatives include the Recovery Transparency Accountability Board’s recovery.gov project which tracked data on federal stimulus spending.⁹ And there is a longer history of performance management reform, including the Government Performance and Results Act (1993) and work by the Office of Management and Budget under Presidents Bush and Obama. Nonetheless, to date no president has attempted to implement at the federal level the comprehensive approach that O’Malley has adopted at state level.

Why it Works

The Baltimore Sun once joked of CitiStat that ‘one of Baltimore’s hottest tourist spots is on the sixth floor of City Hall’. As StateStat and CitiStat continue to attract international attention, what explains their success? ¹⁰

1. Having clarity about the problems and the outcomes that matter most

- **Executive commitment and political will:** Stat models rely on an executive champion who is prepared to set a clear direction for his or her government. For example, Governor O’Malley established 16 strategic goals for Maryland which were set to ambitious timetables. This approach is not for the faint hearted: not every goal will move in the right direction all the time and political opponents will naturally seize on failings. But for O’Malley, ‘Effective leaders make themselves vulnerable – own the goals of the government you run and the people you lead, or no one else will.’¹¹
- **Setting measurable and meaningful goals:** A careful analysis of the status quo is needed if the right goals and performance indicators are to be chosen and appropriate interventions selected to solve problems.¹² After being elected Mayor of Baltimore, O’Malley reportedly told his adviser, Jack Maple, that certain things – such as at-risk children – could not be measured. Maple responded with a list of potential indicators, from broken basketball hoops to the hours that recreation centres were open.¹³ The CitiStat and StateStat teams spend considerable time ensuring that the data collected serves a clear purpose and is difficult to game, thereby ensuring the process is no ‘dog and pony show’.
- **Diagnosing problems through common platforms:** The CitiStat and StateStat teams follow the same process with every agency: collating and analysing data, identifying trends, undertaking field visits, and holding cross-agency meetings to diagnose problems and co-design action plans. Common platforms – where datasets

from different agencies can interact with one another – enable geospatial analysis. Problem ‘hotspots’ can be detected and challenges understood in new ways, and resources can be allocated differently in response.

- **A citizen-focused approach that requires cross-agency working:** O’Malley has written that while his predecessors once earned reputations as good governors by ‘breaking government into ever more separated parts’, what is needed today ‘is connection, not disconnection: a bringing together of organisations and capacities to work collaboratively toward solutions’ rather than creating more departments and ‘more cracks for vulnerable kids to fall through’.¹⁴ All O’Malley’s strategic goals necessitate some form of cross-agency collaboration. In the case of his target to improve the Chesapeake Bay ecosystem, considerable cross-government collaboration was needed.

Setting clear, public goals which are meaningful to citizens rather than bureaucracies, means that Stat meetings have to bring together heads of multiple agencies, forcing them to work together and outside their own silos. As well as being cost effective, the Stat process makes it easier for different agencies to collaborate. It allows data and personnel from different agencies to come together and tackle complex problems, without necessitating a reorganisation of existing organisational systems and structures.¹⁵

During our visit we were struck by the fact that Stat meetings can foster a collaborative spirit. Instead of shifting blame when graphs are heading in the wrong direction, agency heads work together to design solutions; when graphs are heading in the right direction, instead of hoarding credit, agency heads were keen to share it.

2. Setting routines to keep implementation on track

- **Relentless progress chasing:** Stat meetings – where officials regularly gather to review performance – help ensure agency executives scrutinise their organisation’s performance data on a routine basis. Agencies know the schedule of meetings almost a year in advance. This schedule is set in stone. Meetings always take place. The Stat team puts in writing and follows up on commitments made at the meetings. The next meeting on a specific goal will pick up where the last left off. This cycle helps to embed the Stat process into the day-to-day rhythm of agencies’ work.

Figure 2: The StateStat process¹⁶

- Dedicated Stat meeting rooms:** Space matters. Both Baltimore and Maryland have a dedicated Stat meeting room (see Figure 3). These rooms – branded with CitiStat and StateStat logos – tangibly signal the importance each government attaches to the Stat process. Equally, the layout of these Stat rooms helps foster the right dynamic during meetings. Relevant charts, graphs, and maps are projected on to flat screens and serve as the basis of discussion. Agency heads sit around in a semi-circle, discuss progress on goals they have collective responsibility for, and face questions from a panel at the front that consists of members of the executive team (and in StateStat's case often the Governor himself).

Figure 3: Stat rooms in Annapolis (left) and Baltimore (right)



Sources: Executive Office of the Governor and the Institute for Government, 2014

- **Transparency:** These routines are bound up in a broader open government agenda that has reinforced the effectiveness of the Stat process.

The very public nature of Stat meetings means that agency heads take the process extremely seriously. Not only are they quizzed by members of the executive team but this questioning takes place in front of colleagues from other departments and members of the public. (Citizens are free to sit in on meetings and representatives from advocacy organisations often attend).

The practice of putting agency data online also facilitates more joined-up government as well as making progress clear and accessible to the public. A major user group of Maryland's Open Data Portal is actually the state government's own workforce. Information that was previously held on separate agency databases is now openly accessible without staff having to submit data-sharing requests.

3. Bringing the right people on board

- **Recruiting the right skill sets:** Strong working relationships between agencies and central Stat teams are critical to securing compliance. As a result, relationship management skills have been as sought after as analytical capabilities when hiring for Stat team positions. The Stat model has also influenced recruitment as participants have realised the process isn't going away. Many agencies have sought out individuals capable of handling the data capture demands of the process.

The Stat meetings themselves have served as a useful recruiting ground for senior positions, helping identify individuals with a commanding knowledge of their agency's performance data.

- **The use of rewards and sanctions:** The introduction of the stat process wasn't without resistance but a range of sanctions and rewards have helped facilitate co-operation (see Figure 4). Overall, rewards have been used far more than sanctions to bring officials on board.

Figure 4: Rewards and sanctions used in the Stat process

Rewards	Sanctions
Additional resources where genuine need is detected	Transferring responsibility for an enterprise to another agency
Assistance from the Governor's/Mayor's Office in removing obstacles to delivery	Replacing heads of agencies
Public recognition and improved promotion prospects through Stat meetings	Public admonishment during Stat meetings

- **Quick wins that can be easily understood:** Compelling early results are key to stimulating interest and buy-in from agencies and citizens. A 14% drop in the murder rate using the 'cops on dots' strategy developed by the NYPD proved a quick win for

Baltimore's CitiStat. Similarly, clearing a backlog of more than 24,000 DNA samples awaiting analysis, allowing state law enforcement to solve several open cases, was a demonstrable win in the first 12 months of StateStat operations. These headline successes were helpful in restoring public confidence in government.

Challenges

The Stat model is not without its challenges. Getting it off the ground at state level in Annapolis and at city level in Baltimore required overcoming a number of key obstacles.

- **Limited control over delivery chains:** State governments are not as readily 'stat-ables' as their municipal counterparts. Government agencies in jurisdictions like Baltimore and New York City have more direct responsibility for the provision of frontline services making Stat models easier to administer. It was for this reason that Governor O'Malley imported methods from the UK's Prime Minister's Delivery Unit and set a number of strategic goals that agencies would be required to deliver collectively.

Getting StateStat up and running in Maryland also required considerable collaboration with other levels of government. Driving progress on key indicators such as education, justice, and the environment involved state agencies working with both municipalities and federal agencies. The StateStat Director described working at state level as requiring 'a little bit more diligence, a little bit more big picture thinking, and arguably ... a little more patience'.

- **Entrenched operating cultures and practices:** For officials in Baltimore and Annapolis, the Stat model involves a fundamentally different way of working. Early on, the quality of available operational data was patchy and staff were inexperienced at capturing it. There was also considerable resistance from some quarters over the cost and administrative burden of gathering data as well as concerns that Stat meetings – and revelations that data might be heading in the wrong direction – would be used to publicly humiliate the heads of participating agencies.

Various steps were taken to allay concerns. The cost and need for training were minimised with the choice of the 'lowest common denominator', Microsoft Excel, to capture data. Stat teams also worked to develop value propositions for agencies, promising more resources should genuine need be detected and providing some technical assistance to improve data systems. In terms of transparency, the Stat approach (and other open data initiatives, such as the UK Major Projects Authority's ratings of large-scale government projects) has shown some concerns to be unfounded: critical results and ratings do not herald the end of the world, and indeed lend more credibility to announcements of progress.

- **Measuring the right thing:** There is always a danger that performance measurement can lead to 'perverse incentives' or 'output distortions', where targets are met but the objectives underlying them are not. Under CitiStat, for example, crews tasked with filling potholes were sometimes recording the completion of jobs, when citizens were still reporting problems. This turned out to be due to crews

deciding a problem shouldn't have been classified as a pothole and was a matter for another agency, with the result that the problem was left unresolved.

Such problems underscored the need for internal audit procedures. In the pothole example, it was only through a combination of citizen satisfaction surveys, spot checks, investigations on the ground, and call logs from Baltimore's 311 reporting system (a one-stop shop for citizens) that the problem could be diagnosed. Data collection was refined and a 'no wrong door' approach – focused on the citizen as a consumer of public services, rather than agencies as providers – was instituted.

- **Citizen engagement:** While public reporting holds broad electoral appeal, the vast majority of ordinary citizens are not making use of the data made available through the stat process. Equally, StateStat meetings are open to the public, but few attend.

We found broad recognition on our visit that officials need to find ways of making the Stat process meaningful to citizens. This is important if politicians want to demonstrate that they have delivered on their election commitments.

This includes government getting better at telling stories. Data visualisation software, such as Esri's Story Maps, can help. So can presenting data at a level which matters and means something to people, down to their own street or household (see the popularity of websites like Zillow in the US or Zoopla and Rightmove in the UK which allow people to see how much homes in their neighbourhood are sold for).¹⁷

Even where citizens themselves are not directly accessing the data, making it accessible allows news organisations and community groups to tell stories with it.

Handling a Transition

Changes of administration pose a particularly acute challenge to the longevity of Stat processes in government. With Governor O'Malley leaving office on 21st January 2015, our visit was a timely opportunity to look at this issue. Our observations suggest the following lessons for any incoming government inheriting an existing system.

1. **Re-brand, don't disband:** The Stat model should be recognised for what it is – a *resource* for political leaders. This data-driven approach to performance management helps guide decisions over public spending and enables elected officials to track the progress being made on their election commitments.

Yet while the Stat process's strength comes from having an executive champion, this can also be its downfall. Its close association with a previous administration renders it susceptible to being disbanded.

The fate of Maryland's StateStat currently hangs in the balance. Governor O'Malley has championed this performance management tool since his early days as Mayor of Baltimore. It will be all too easy for StateStat to become overly politicised now that his second term is at an end and a Republican administration is preparing to take over.

But rebranding rather than disbanding StateStat would better serve the new administration. The UK offers a useful lesson here. In 2010, the new Coalition Government disbanded the Prime Minister's Delivery Unit (PMDU) created under Tony Blair's premiership. Yet just a year later, frustrated at the absence of a mechanism to drive key priorities such as economic growth, David Cameron's Government had to bring back a PMDU-like unit, this time known as the Implementation Unit.

2. **Look to modernise and adapt the Stat model over time:** The Stat model has never been static. It has already evolved significantly since the early days of New York City's CompStat and Baltimore's CitiStat. Advances in technology – particularly geographic information system software – have allowed new forms of data analytics and visualisation. Equally, the model has recently become a vehicle for driving external transparency in the era of open government. In CitiStat's early days, the concept of 'open data' didn't exist, nor did the technology to support it. The best that could be offered was a CD ROM containing data that would be given to interested groups on a quarterly basis. Now data is made available through an open data portal in almost real time.

Incoming administrations have the opportunity to put their stamp on any existing Stat process. In Baltimore, O'Malley's successors have adapted CitiStat to suit their own management styles. There are plenty of innovations in government today – such as the growing use of innovation labs to resolve thorny implementation problems – that would perfectly complement the Stat model.

3. **Public expectations of transparency may prove irreversible:** One of the key features of StateStat is the emphasis placed on external transparency. Citizens can use interactive dashboards to see in almost real-time whether the state government is 'on track', 'progressing', making 'insufficient progress', or 'lagging' behind proposed delivery timelines. Agency data is posted online, as are summaries of StateStat meetings and the graphs, charts, and maps used in them.

In reality, most citizens don't make regular use of this information. But the StateStat process has become particularly important to advocacy groups such as veterans associations, environmental organisations, and business groups. StateStat has offered a window into state government that never existed before. It would be a hard sell for any administration to simply shut down this reporting mechanism without offering anything in its place.

The future

What does the future hold for Governor O'Malley's brand of data-driven delivery? Its continued use in Maryland remains unclear, given its strong association with O'Malley. Yet it does have bipartisan appeal. As O'Malley has written, it is about 'decisions based on better results...not decisions based on ideology'.¹⁸ The recent book, *Moneyball for Government*, consists of a series of chapters co-authored by Democrats and Republicans and argues that different motives should make the Stat model attractive to different parties. For many Republicans, it offers a chance to identify and 'strip out unnecessary programs and prove that smaller government is effective government'. For Democrats, it offers 'the opportunity to

prove that government, irrespective of its size, can help improve outcomes for Americans of all walks of life'.¹⁹ But even where successors are of the same party, it is a tool that can be adapted to serve a wide variety of management styles.²⁰

The speculation that O'Malley is contemplating a run for the Democratic Presidential nomination for 2016 holds out the possibility of a federal 'stat' model, in spite of the challenges of applying it to a government of that size and complexity.²¹ The adoption of the stat model elsewhere in the US, the bipartisan interest inside and outside Congress embodied by the 'Moneyball for Government' movement, and the Office of Management and Budget's recent work on performance management, could also contribute to the introduction of a federal Stat model — a 'Stat of the Union'.

Whatever the future of the stat model, it has already changed the way Maryland and places across the United States have been governed. Its success is not just about data or even performance management, but a more effective way of governing: getting the right people in the room to make decisions, working across agencies and breaking down silos, and setting clear priorities for government. Ultimately, a political leader committed to the data-driven delivery model of government can not only get things done, but build credibility by demonstrating to citizens that they are getting things done and that promises are being met.

Endnotes

¹ Gold, J., *International Delivery: Centres of government and the drive for better policy implementation*, Institute for Government and Mowat Centre, September 2014, retrieved 12 January 2015, <<http://www.instituteforgovernment.org.uk/publications/international-delivery-centres-government-and-drive-better-policy-implementation>>. For a summary of the report, see Gold, J., 'Delivery – what the UK can learn from Maryland and elsewhere', *Institute for Government blog*, 22 September 2014, retrieved 13 January 2015 at <<http://www.instituteforgovernment.org.uk/blog/9052/delivery-what-the-uk-can-learn-from-maryland-and-elsewhere/>>

² Institute for Government, *A Programme for Effective Government: What the party manifestos must address in 2015*, September 2014, retrieved 12 January 2015, <<http://www.instituteforgovernment.org.uk/publications/programme-effective-government-1>>; Institute for Government, *Whitehall Monitor 2014: A data-driven analysis of the size, shape and performance of Whitehall*, November 2014, retrieved 12 January 2015, <<http://www.instituteforgovernment.org.uk/publications/whitehall-monitor-2014>>

³ Norris, E., Kidson, M., Petr Bouchal, P. and Rutter, J., *Doing them Justice: Lessons from four cases of policy implementation*, Institute for Government, July 2014, retrieved 12 January 2015 <<http://www.instituteforgovernment.org.uk/publications/doing-them-justice>>

⁴ See Gold, J., *International Delivery: Centres of government and the drive for better policy implementation*, Institute for Government and Mowat Centre, September 2014, retrieved 12 January 2015, <<http://www.instituteforgovernment.org.uk/publications/international-delivery-centres-government-and-drive-better-policy-implementation>>. For a summary of the report, see Gold, J., 'Delivery – what the UK can learn from Maryland and elsewhere', *Institute for Government blog*, 22 September 2014, retrieved 13 January 2015 at <<http://www.instituteforgovernment.org.uk/blog/9052/delivery-what-the-uk-can-learn-from-maryland-and-elsewhere/>>

⁵ Maryland State Government, *Governor O'Malley's 16 Strategic Goals*, StateStat, 2015, retrieved 12 January 2015, <<https://data.maryland.gov/goals>>

⁶ Nussle, J. and Orszag, P. (eds.), *Moneyball for Government*, Disruption Books, 2014, p.39

⁷ Panchamia, N. and Thomas, P., *Public Service Agreements and the Prime Minister's Delivery Unit*, Institute for Government, March 2014, retrieved 12 January 2015, <<http://www.instituteforgovernment.org.uk/our-work/more-effective-whitehall/civil-service-reform-past-lessons/public-service-agreements-and>>

; Etheridge, Z. and Thomas, P., *Adapting the PMDU model: A case study on the creation of a PMDU style Delivery Unit in Haringey Council*, Institute for Government, Forthcoming 2015.

⁸ Martin, D., 'Jack Maple, 48, a Designer of City Crime Control Strategies', *New York Times*, 6 August 2001, retrieved 12 January 2015, <<http://www.nytimes.com/2001/08/06/nyregion/jack-maple-48-a-designer-of-city-crime-control-strategies.html>>; Panchamia, N. and Thomas, P., *Public Service Agreements and the Prime Minister's Delivery Unit*, Institute for Government, March 2014, retrieved 12 January 2015, <<http://www.instituteforgovernment.org.uk/our-work/more-effective-whitehall/civil-service-reform-past-lessons/public-service-agreements-and>>; O'Malley, M., *The Origins of StateStat*, Maryland State Government website, 2001, retrieved 12 January 2015, <<http://www.statestat.maryland.gov/history.asp>>; Rosenberg, T., 'Armed With Data, Fighting More Than Crime', *New York Times*, 2 May 2012, retrieved 12 January 2015 from

http://opinionator.blogs.nytimes.com/2012/05/02/armed-with-data-fighting-more-than-crime/?_r=2;

Kamensky, J., 'Maryland's Fact-Driven, Strategy-Based Governing Approach (08-2009)', *IBM Center for The Business of Government website*, August 2009, retrieved 12 January 2015 from <<http://www.businessofgovernment.org/brief/marylands-fact-driven-strategy-based-governing-approach-08-2009>>; Maryland StateStat, 'About StateStat', Maryland State Government website, 2014, retrieved 12 January 2015, <<http://www.statestat.maryland.gov/about.html>>; Chesapeake Bay Program, 'Chesapeake Bay Watershed Agreement', Chesapeake Bay Program website, 2014, retrieved 12 January 2015,

<<http://www.chesapeakebay.net/chesapeakebaywatershedagreement/page>>; ChesapeakeStat, 'Overview', 2014, Chesapeake Bay Program website, retrieved January 2015, <<http://stat.chesapeakebay.net/?q=node/5>>

⁹ Nussle, J. and Orszag, P. (eds.), *Moneyball for Government*, Disruption Books, 2014, pp. 40-43.

¹⁰ Staff, 'CitiStat: 10 years of measuring progress', *Baltimore Sun*, 20 June 2010, retrieved 12 January 2015, <http://articles.baltimoresun.com/2010-06-30/news/bs-ed-citistat-20100630_1_citistat-innovators-city-trash-and-recycling>

¹¹ O'Malley, M., 'Practical Advice to Future Governors', *Letters to the People of Maryland on Tumblr*, January 2015, retrieved 12 January 2015,

<<http://letterstomaryland.tumblr.com/post/106929115588/practical-advice-to-future-governors>>

¹² Norris, E., Kidson, M., Petr Bouchal, P. and Rutter, J., *Doing them Justice: Lessons from four cases of policy implementation*, Institute for Government, July 2014, retrieved 12 January 2015 <<http://www.instituteforgovernment.org.uk/publications/doing-them-justice>> p.11.

¹³ Rosenberg, T., 'Armed With Data, Fighting More Than Crime', *New York Times*, 2 May 2012, retrieved 12 January 2015 from http://opinionator.blogs.nytimes.com/2012/05/02/armed-with-data-fighting-more-than-crime/?_r=2

¹⁴ O'Malley, M., 'StateStat and the Enterprise of Governing', *Letters to the People of Maryland on Tumblr*, 5 January 2015, retrieved 12 January 2015,

<<http://letterstomaryland.tumblr.com/post/107240137940/statestat-and-the-enterprise-of-governing>>

¹⁵ Centre for Cities, *Governor Martin O'Malley – Maryland, USA: Note from What Works Growth and Centre for Cities roundtable event*, Centre for Cities website, September 2014, retrieved 12 January 2015, <<http://www.centreforcities.org/wp-content/uploads/2014/10/14-09-25-Gov-Martin-OMalley-Note.pdf>>

¹⁶ Maryland StateStat, 'About StateStat', Maryland State Government website, 2014, retrieved 12 January 2015, <<http://www.statestat.maryland.gov/about.html>>

¹⁷ Esri's Story Maps embed data, photographs, videos, and text into GIS mapping software. See Esri, *What is a Story Map?* Arcgis website hosted by Esri, 2014, retrieved 12 January 2015, <<http://storymaps.arcgis.com/en/articles/what-is-a-story-map/>> In 2009, the federal Recovery Accountability and Transparency Board held focus groups to support the re-launch of the Recovery.gov web site. Regardless of participants' political views or opinions on the federal stimulus, there was widespread support for the site's interactive map that allowed users to see how stimulus dollars were spent at a local level. This map used Esri software.

¹⁸ O'Malley, M., 'StateStat and the Enterprise of Governing', *Letters to the People of Maryland on Tumblr*, 5 January 2015, retrieved 12 January 2015,

<<http://letterstomaryland.tumblr.com/post/107240137940/statestat-and-the-enterprise-of-governing>>

¹⁹ Nussle, J. and Orszag, P. (eds.), *Moneyball for Government*, Disruption Books, 2014, p.78.

²⁰ See Broadwater, L., 'New CitiStat director pledges improvements, transparency', *Baltimore Sun*, 13 October 2012, retrieved 12 January 2015, <http://articles.baltimoresun.com/2012-10-13/news/bs-md-sun-investigates-citistat-20121009_1_citistat-data-deputy-mayor-christopher-thomaskutty-yolanda-jiggetts>

²¹ Edwards, H. S., 'Should Martin O'Malley be President?', *Washington Monthly*, May/June 2013, retrieved 12 January 2015,

<http://www.washingtonmonthly.com/magazine/may_june_2013/features/should_martin_omalley_be_presi044513.php?page=all>