



**RETHINKING BUDGETING**

# BUDGET OFFICER AS DECISION ARCHITECT

How budget officers can reduce the impact of  
bias and noise for better decision-making





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*The authors thank the GFOA research team and many others who have provided valuable feedback.*

## ABOUT GFOA:

The Government Finance Officers Association (GFOA) represents over 21,000 public finance officers throughout the United States and Canada. GFOA's mission is to advance excellence in government finance. GFOA views its role as a resource, educator, facilitator, and advocate for both its members and the governments they serve and provides best practice guidance, leadership, professional development, resources and tools, networking opportunities, award programs, and advisory services.

## ABOUT THE RETHINKING BUDGETING PROJECT

Local governments have long relied on incremental, line item budgeting where last year's budget becomes next year's budget with changes around the margin. Though this form of budgeting has its advantages and can be useful under circumstances of stability, it also has important disadvantages. The primary disadvantage is that it causes local governments to be slow to adapt to changing conditions. The premise of the "Rethinking Budgeting" initiative is that the public finance profession has an opportunity to update local government budgeting practices to take advantage of new ways of thinking, new technologies, and to better meet the changing needs of communities. The Rethinking Budgeting initiative will raise new and interesting ideas like those featured in this paper and will produce guidance for state and local policy makers on how local government budget systems can be adapted to today's needs. We hope the ideas presented in this paper will spur conversation about the possibilities for rethinking budgeting. The Rethinking Budgeting initiative is a collaborative effort between the Government Finance Officers Association (GFOA) and International City/County Management Association (ICMA).

To learn more, visit [gfoa.org/rethinking-budgeting](https://gfoa.org/rethinking-budgeting).



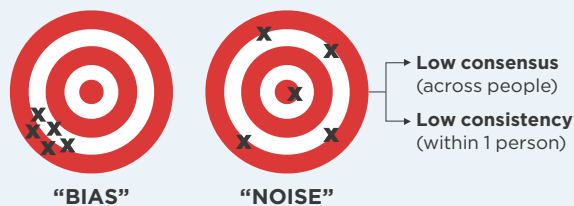
Organizations benefit from decision architecture. Budget officers can be the decision architects of local government by building on four job responsibilities that allow them to reduce the impact of well-known problems of bias and noise in human decision processes.

Government leaders make decisions for a living. With good decision-making, they can greatly improve the lives of their constituents and further their own careers. But decision-making is messy. It is often done by groups, so there are conflicting points of view. It is usually time constrained, so there isn't time to consider everything. There is always uncertainty, usually more than we realize. And it is done by humans, so it comes with the myriad well-documented cognitive biases<sup>1,2</sup> and inconsistencies (i.e., “noise”)<sup>3</sup> in human thought.

### Bias vs Noise, Explained

**Bias:** Systematic pattern of deviation from rational decision-making. Examples include present bias (the human tendency to focus on immediate versus long-term considerations) and status quo bias (the tendency to favor current options and not give new options a fair shake).

**Noise:** Unrecognized inconsistency in judgment. Inconsistency may be between judgments of the same person at different times, or between judgments of similar options. Noise may also be between judgments of the same option by different people who were thought to have similar information and generally aligned interests.



Budget officers are positioned to help government officials reduce the negative impact of bias and noise in decision processes. Helping people avoid bias and noise is sometimes called “decision architecture.”<sup>4</sup> Budget officers can be good decision architects because they are likely to possess four broad perspectives and skill sets. Each of these can be further developed through engagement with the ideas of behavioral science:

#### THE BUDGET OFFICER’S FOUR JOB RESPONSIBILITIES AS DECISION ARCHITECT\*

##### Widen the option

**set:** The budget officer’s role in budget preparation gives them a bird’s-eye view on the wide set of activities the government must pursue. They can thus help decision-makers see the big picture and find a wider set of possible solutions.

##### Test assumptions:

The budget officer’s examination of calculations and projections gives them a unique perspective on the assumptions and uncertainties of project proposals. They can thus help decision-makers identify uncertainties and test assumptions before overinvesting.

##### Find high-value

**options:** Budget officers see which trade-offs are being made and which ones may still need to be considered. They can help decision-makers choose highest-value options.

##### Foster trust in the

**process:** Budget officer’s ethos of objectivity (if not neutrality) puts them in a position to foster trust in good decision processes.



#### The Decision Architect is the Finance Officer that Elected Officials Need and Want

Catherine Tuck Parrish has over thirty years of local government management and consulting experience. She conducts executive searches for local governments and has hundreds of searches under her belt. Here is what she is finding local governments are asking for from their finance officers. You will see there are many parallels between these requirements and the role of the decision-architect.

*“Local government leaders need help with complex decisions they are faced with. They need their finance leaders to be strategic partners in these decisions by providing not only great data, long-term projections and future impact, but also ensuring that the numbers tell a story everyone can understand. There is also a need to provide clarity about what today’s financial decisions might mean for all parts of the community and the future. In order to be most helpful, finance leaders must be trusted, understandable, and also help build consensus.”*

\*See page 8 for a graphical summary of the key ideas presented in this paper.



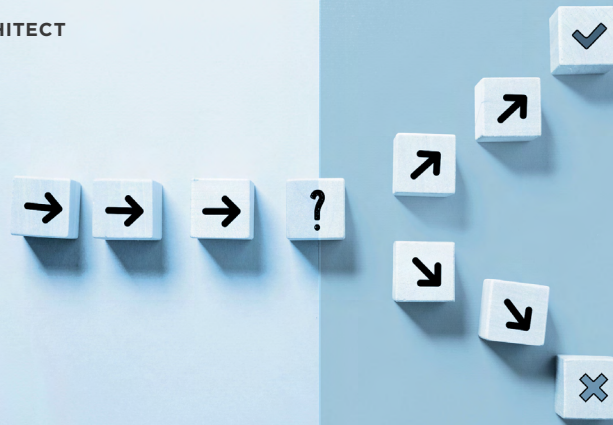
## RESPONSIBILITY 1

### Help decision-makers see a wider option set

Budget officers have a great mental model of government spending. They can see the big picture as well as the devil in the details. They are able to see budgetary needs that are being ignored (because they have seen line items cut, or they see them in budgets of other governments). This mental model allows them to help decision-makers see blind spots. Decision-makers often narrow in too quickly on specific ideas. Sometimes they let the urgent to be the enemy of the important, and they miss glaring needs and opportunities as a result. Budget officers can help widen the view.

- ➔ **Establish the decision need:** Budget officers can help establish a decision need, for example, by encouraging decision-makers to develop rainy-day funds. What will the government do if there is a recession and tax revenue declines sharply and unexpectedly? What will they do if there are emergency spending needs? The budget officer can frame the problem and present it in a timely manner so that stakeholders feel the risk and urgency to act now (risk communication). They can show decision-makers that such a fund can be created with reasonable effort by showing that other municipalities have managed to do it.<sup>5,6</sup>
- ➔ **Reduce unearned power of defaults:** Humans tend to stick with the status quo, or the “default,” when making decisions. The budget officer has a decision architecture opportunity by ensuring that default options do not get more priority than they deserve. In budgeting, last year’s budget often serves as the default that anchors next year’s budget. This can backfire in certain cases, such as when the government needs to make budget cuts or change the type of services it provides to the community.<sup>7</sup> Zero-based and priority-driven budgeting<sup>8</sup> are well-established techniques to reduce the power of the default.
- ➔ **Avoid whether-or-not decisions and find more options:** Many organizations find themselves making “whether-or-not” or “go-no-go” decisions. While simple decisions have obvious appeal, research has shown that this framing often artificially narrows the option set. People fail to consider other available options, and they fail to consider the opportunity cost of new programs.<sup>9</sup> Because of the sunk cost effect, they may fail to consider options to scrap or revise failing programs. Decision architects can help by encouraging consideration of new options. This can include finding bright spots<sup>10</sup>—programs or parts of programs that have been successful—and asking, “Might we instead consider doing more of that bright spot program?” Decision architects can also help bring people together to collaborate on option generation. For expensive programs, it is often possible to negotiate for lower-cost options if the right stakeholders are brought in.





## RESPONSIBILITY 2

### Help decision-makers test assumptions (and uncertainty)

Will a given program work? People have difficulty thinking about and talking about uncertainty. We tend to be overly certain that we are right.<sup>11</sup> We make assumptions without realizing it. We tend to speak vaguely about our uncertainties.<sup>12</sup> And we make errors in using data to compute probabilities.<sup>13</sup>

To encourage a better incorporation of uncertainty into government decision-making, decision architects can help stakeholders clarify, reflect on, and test assumptions. No one has a crystal ball, but decision architects can help stakeholders be more realistic about what they know and don't know.

- ➔ **Collect and clarify assumptions:** Ideally, people would express their beliefs in probabilistic terms. We would say, for example, “I am 75% sure that revenue will be between \$9 million and \$11 million in fiscal year 2024.” Instead, people prefer to say things like “It’s very likely that revenue will be around 10 million.” Where possible, decision architects can help express uncertainty in a quantitative manner; but in practice, it can be hard to get people to draw such fine lines. At the very least, decision architects may be able to push stakeholders to express some assumptions. Are we assuming that inflation will not accelerate? Or that it will remain in the range of X to Y? Are we assuming program compliance will be above X%? That sort of thing. Simply laying out assumptions can help stakeholders incorporate uncertainties into their decisions. This can help reduce noise (i.e., inconsistency) by creating a common structure for expressing uncertainty.
- ➔ **Reflect on assumptions:** Even if decision-makers state their assumptions, they may not reflect on them. How can we help decision-makers reflect on assumptions and consider the possibility that they may be incorrect? How can we get them to “think again”?<sup>14</sup> Decision architects ask good questions like “Could you please explain how this works?” This question alone has been shown to make people more realistic.<sup>15</sup> And other approaches, like the pre-mortem, can help people see their blind spots.<sup>16</sup> A premortem invites decision-makers to imagine that they had taken a certain course of action and that it had not gone well. They are then asked to reflect why it might have not gone well. Starting with the presumption of failure can help people identify blind spots, question the certainty of their own assumptions, and better prepare to prevent possible failures.
- ➔ **Test assumptions:** Even the most carefully scrutinized assumptions may prove wrong when brought to the real world. Decision architects can help set up opportunities to test assumptions. Companies test assumptions by developing pilot studies. They often create minimally viable products and test them with customers to see if the design assumptions translate into positive customer sentiment and adoption. Similarly, governments can pilot test the assumptions of many program options. For example, recycling programs can be tested in specific neighborhoods. If pilot testing is not possible, we can look for comparable cases. If a tax decrease is being considered, we can examine results in comparable jurisdictions that tried the same thing.



### RESPONSIBILITY 3

## Help decision-makers choose highest-value options

When program options are considered by stakeholders, there may be disagreement about whether the program objectives are in line with the government's values and mission, and whether they are worth the cost. Navigating those considerations (and accompanying disagreements) can be supported by providing context, encouraging the long-term view, and helping people find common ground.

- ➔ **Provide common metrics, scales, and reference points:** Humans have trouble with scale and quantity. We tend to speak in the language of “big” and “small,” not in terms of millions of dollars spent or number of accidents avoided, etc. And when we do speak in numeric terms, we often lack the context to know the meaning of that number. Is a million dollars a high price for this program? Is a 3% cut a lot or a little? Are five accidents avoided a lot? Decision architects can provide additional comprehension support by giving quantity comparisons. Many approaches to doing this are described in *Making Numbers Count*<sup>17</sup> and *Innumeracy in the Wild*.<sup>18</sup> Scales and metrics can help reduce noise (i.e., inconsistency in judgment) by creating a common structure for understanding and expressing quantities.
- ➔ **Champion the long-term view:** Another major challenge with human decision-making is the tendency to focus on short term over long term (sometimes called “present bias”<sup>19</sup>). In government contexts, this tendency can be exacerbated by the pressures of short-term election cycles. Decision architects can help decision-makers focus on long-term considerations, at least ensuring that they be articulated, even if the pull of the short term remains strong. There are a few ways to do that, but we will focus on one already used by many local governments: the precommitment.<sup>20</sup> The local government decision-makers commit to a responsible long-term policy before being faced with tough decisions that pits short-term gain against long-term gain. An example is a policy that limits the amount of debt a government takes on or prohibits back-loaded repayment schedules. There might be pressure to take on a disadvantageous debt arrangement when a popular capital improvement is on the table, but precommitting to policies like those described help local officials make the financially savvy decision.
- ➔ **Deal with heterogeneous preferences:** Programs will not have uniform impact on stakeholders. Stakeholders do not have uniform preferences or uniform information. And individual stakeholders may have inconsistent preferences (i.e., the problem of noise) and preferences that change over time. Decision architects must manage this challenge by seeking multiple perspectives, helping to identify fair ways to resolve difference in preference, while still ensuring that efficient options rise to the top and the group is not hindered by a few loud voices. To illustrate, the budget could feature decision-making tools that help reveal people's full range of preferences and give voice to everyone at the table. One such example that has been studied by GFOA is Quadratic Voting. You can read about Quadratic Voting and its application to Nashville Metropolitan government budget in the GFOA report “[Many Choices and Many People](#).”

## RESPONSIBILITY 4

### Create trust in the process

To effectively serve as decision architects, budget officers will need to nurture trust, both in their role and in the decision process overall. GFOA has emphasized the role of trust in much of its ongoing work, including its Code of Ethics.<sup>21</sup> Psychologist Susan Fiske has characterized trust as a function of warmth and competence,<sup>22</sup> while psychologist Jonathan Haidt has emphasized perceptions of fairness.<sup>23</sup> We suggest that these are responsibilities of the budget officer who seeks to nurture trust: warmth, competence, and fairness.

- ➔ **Create trust through warmth:** The role of the decision architect is a people-facing role, so getting face time matters. “Hitting the pavement” creates trust through warmth. Simply meeting with stakeholders and departments regularly will increase familiarity and reduce the likelihood of friction (and unpleasant surprises) at high-stakes moments. Since some conflict is inevitable, decision architects need specific skills for managing conflict. How can we be warm while challenging people, say in the context of a budget discussion? One underdeveloped skill is question-asking. People generally like to talk, so being asked a question is often seen as a gift...if it comes with signals that you are actually listening to the answer and interested in what the person has to say. Second, having to answer good questions requires thought and has been shown to get people to self-reflect on their own positions and objectives. One study showed that expert negotiators asked more than twice as many questions as novice negotiators.<sup>24</sup> Budget officers can take a more systematic approach to making other people feel heard and understood by using tools such as Moral Foundations Theory. You can read about Moral Foundations Theory and a study conducted by GFOA of its application to government finance officers in the report.<sup>25</sup>
- ➔ **Create trust through competence and capable processes:** Decision architects must be perceived as competent. Budget officers will generally be perceived as competent already, owing to their specialized financial skillset, so they aren’t starting from scratch. But special effort is to create trust in the decision architect role and in the overall decision processes being promoted through that role. One approach is to develop language around the decision process and some agreed-upon principles, and then keep referring to them and defending the process. An example of this approach is described in *Thinking in Bets*,<sup>26</sup> by behavioral scientist and former professional poker player Annie Duke. Explicitly choosing on principles, she argues, can improve decision-making since people are prone to “outcome bias.” In poker, that means making an unnecessary, low-probability bet and winning against the odds. These outcomes feel good, but they create a dangerous belief in a process that is bound to fail in the long run. Championing the process, and not just the outcomes, is the way to show competence and earn trust.
- ➔ **Create trust through fairness:** People are sensitive to fairness. Perceptions of fairness can include considerations of how goods or outcomes are distributed—that is, who gets what, and also by how people are treated. Decision architects can raise awareness of distributive justice<sup>27</sup> by, for example, developing measures of service levels by neighborhood. But, perhaps more in the decision architect’s control is the perception of procedural fairness. Was the decision process seen as fair? Procedural fairness is more likely to be perceived when the decision is 1) in line with the evaluator’s values and ethics, 2) based on good information, and 3) not biased by the self-interest and narrow perceptions of the decision-maker. Transparency is the key, as noted in another GFOA publication, “[What’s fair? Exploring the behavioral science of justice and fairness.](#)” By making the decision-making process explicit, you can help stakeholders see that procedural fairness has been maintained.





Practitioners in many industries and functions are relying on behavioral science to identify best practices for a range of roles.

## Conclusion

Human judgment and decision-making are inherently limited. Decision architects can help reduce bias and noise in human decision-making processes.

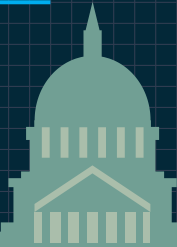
Budget officers already assume the role of decision architect through four key responsibilities. We argue that those decision architect responsibilities can be defined and expanded. The details of the role should be grounded in behavioral science. Practitioners in many industries and functions are relying on behavioral science to identify best practices for a range of roles. Budget officers can expand their decision architect role for governments by researching, developing, documenting, sharing, and executing best practices.



### A Decision Architecture Quick Reference

Check out the next page for a graphical summary of the key ideas presented in this paper.

# BUDGET OFFICER AS DECISION ARCHITECT



## ► OUR CHALLENGE

PUBLIC OFFICIALS make decisions for a living. With good decision-making, they can greatly improve the lives of their constituents. But decision-making is messy. It is often done by groups, so there are conflicting points of view. It is usually time constrained, so there isn't time to consider everything. There is always uncertainty, usually more than we realize. And it is done by humans, so it comes with the myriad cognitive biases and inconsistencies in human thought.

## SOLUTION: THE BUDGET OFFICER

BUDGET OFFICERS are uniquely positioned to help public officials make better decisions. Budget officers can design decision processes in ways that produce better decisions. This is known as "decision architecture." To be a good decision architect, the budget officer needs to fulfill four broad responsibilities.



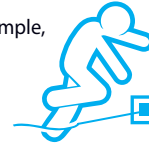
## 1 HELP DECISION-MAKERS SEE A WIDER OPTION SET

THE BUDGET OFFICER'S role in budget preparation gives them a bird's-eye view on the wide set of activities the government must pursue. They can thus help decision-makers see the big picture and find a wider set of possible solutions.



### ESTABLISH THE DECISION NEED

Create "trip wires" that prompt decision-makers to act. For example, a policy that establishes a minimum acceptable fund balance could prompt action if a fund balance gets too low.



### REDUCE THE POWER OF DEFAULTS

Humans tend to stick with the status quo, or the "default," when making decisions. This is often OK but sometimes can backfire. **Watch out for when defaults are impeding needed progress**, like when someone justifies an outmoded approach with "We've always done it that way."



## 2

### HELP DECISION-MAKERS TEST ASSUMPTIONS



THE BUDGET OFFICER'S close examination of projections gives them a unique perspective on the assumptions and uncertainties of project proposals. They can help decision-makers identify uncertainties and test assumptions before overinvesting.

## 3

### HELP DECISION-MAKERS CHOOSE HIGHEST-VALUE OPTIONS



BUDGET OFFICERS see which trade-offs are being made and which ones may still need to be considered. They can help decision-makers choose highest-value options.

## 4

### CREATE TRUST IN THE PROCESS



BUDGET OFFICER'S ethos of objectivity (if not neutrality) puts them in a unique position to foster trust in good decision processes. They can help by showing that the way in which decisions are made is fair, the distribution of resources is fair, and that the budget officer is trustworthy.



### REFLECT ON ASSUMPTIONS

Create opportunities for decision-makers to consider if assumptions are reasonable. For example, making forecast assumptions transparent and pointing out that economy could render some assumptions obsolete could inspire decision-makers to develop contingency plans.



### "PRECOMMIT" TO GOOD DECISIONS

Making good decisions in the heat of the moment is hard. Governments can make a commitment to good choices when the pressure is less. A good example is a policy that commits a government to building and maintaining a rainy-day fund. Precommitments like this can be made for many areas of public finance.



### DESIGN DECISION-MAKING PROCESSES TO BE PERCEIVED AS FAIR

If people think a decision-making process was fair, they are more likely to accept outcomes that aren't their preferred outcome. People are more likely to perceive fairness if 1) the decision-makers are objective and the process is transparent; and 2) the participants are treated with dignity and have a voice.

## ENDNOTES

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