Chapter 7: Creating a Good Model

> *There is no simple formula for creating a good business model. In fact there are lots of ways to fail, many different methods of creating a bad model. These bad modeling methods cross all four model disciplines. For example, one can build an overly complex motivation model, an overly complex organizational model, an overly complex process model, or an overly complex rules model. Creating a good model involves avoiding all the paths of failure. This chapter explains the different paths of failures, and some techniques for avoiding those paths.*

Business modeling can deliver significant value. As we described in Chapter 1, there are eight different kinds of purposes that a business model can achieve. Often a business model will accomplish several of these purposes at the same time.

But in some organizations, business modeling has a bad reputation. "We tried that ten years ago," the old timers say. "There was a team of business modelers on the fifth floor. Lots of models were built, but nothing useful happened." The old timers described how the models became increasingly elaborate and complex, until no one could understand them. "Finally we axed the group."

So why is there a discrepancy between the promise of business modeling and the actual experience of business modeling? What gave business modeling its bad reputation in some organizations?

Leo Tolstoy begins his epic novel Anna Karenina with the sentence "All happy families are alike; every unhappy family is unhappy in its own way." By this he means that to achieve happiness a family must avoid a host of dangers: alcohol abuse, infidelity, overspending, depression, and so on. An unhappy family of drunks is different from an unhappy family of spendthrifts. But the happy families have avoided all the dangers, and for that reason are somewhat alike.

Business modeling is like the situation Tolstoy describes. There are many dangers to business modeling. Each danger can contribute to a bad reputation for business modeling. These dangers include model value destruction, scope failures, straight through modeling, creeping complexity, ugly models, and incompetent modelers. Only by avoiding all these dangers can business modeling succeed.

Fortunately it is possible to avoid all these dangers. With some careful attention and governance, you can build a good model rather than a bad one.

MODEL VALUE DESTRUCTION

Not every model should be built. Sometimes the costs of creating and using a model are greater than the benefits that are gained from its use. In finance the term value destruction is used for situations in which a company takes an action that has a smaller economic benefit than the cost of the action. For example, a company that continues to sell a money-losing product line is said to be destroying value. Some models destroy value in exactly that way and should not be built at all. Model value destruction is one reason for the bad reputation of business modeling.

Creating a model always takes time: time interacting with the subject matter experts, time spent constructing the model with modeling tools, time spent making the model simpler and more understandable, time spent finding and fixing problems with the model, and time spent verifying a model with subject matter experts. Further time is spent using the model: time spent analyzing the model for business implications, time spent explaining the model to others, time spent maintaining the model when things change, and so on.

The act of modeling sometimes adds value on its own, when the modeling leads to greater understanding of a business situation. More often, the mere act of modeling adds no value. The value of modeling comes from the benefits that the model delivers, one or more of the eight purposes described in Chapter 1: communication, training, persuasion, analysis, compliance checking, requirements for software development, direct execution, or knowledge management and reuse. And some models do not deliver enough of these benefits to make up for the time and effort of creating the model.

The decision about whether to create a model is ultimately an economic decision: do the anticipated benefits outweigh the anticipated costs? Are we going to deliver more value using this model than we will spend creating it?

Model Value Analysis

For small models, ones that can be built in an hour or four, we typically make a quick informal analysis. Do we expect to realize enough benefits to offset the time and trouble of creating the model? If it looks like it will add value, we build the model. In any case, the risks are low. At worst we have wasted half a day.

For larger models, we create a more formal analysis. We employ a simple technique to decide whether the model is worth building: we create a *model value analysis* before modeling. A model value analysis is just a summary of the expected costs and the expected benefits, and a comparison of the two. A model value analysis is typically created as a spreadsheet. One sheet of the spreadsheet estimates the costs of creating the model, another estimates the expected benefits, and a summary sheet compares the two.

Consider an example. Like all companies, Mykonos has to pay invoices. The payment process involves receiving invoices from bakeries, restaurant supply companies and vineyards, checking the invoices, resolving issues with them, paying them, and managing the funds to cover the payments. Mykonos provides this process as a shared service to all the individual restaurants. Portia and Adelina and all the other restaurants that are part of Mykonos Corporation do not have to pay invoices on their own. Instead the payments

work is done by a team of seven Mykonos personnel in the Atlanta headquarters, and the individual restaurants interact with this headquarters team to answer questions and resolve issues.

Bill Mayo, Mykonos's controller, manages the accounts payable team. Bill is considering creating a business process model of the payments process. One reason for modeling the process is that the accounts payable team suffers from personnel turnover: Bill loses three or four people every year to transfers or departures. This turnover means significant training for the new people, and Bill believes that a process model will make the training easier and faster.

Bill also thinks a payments process model will make it easier to explain the process to the individual restaurants. They are often confused about their role in the process, and time is spent explaining the process to them. Finally Bill thinks that a process model will reduce the time spent auditing the process every year.

Figure 7.1 shows Bill's estimates of the benefits of having a business process model of the payments process. The benefits are expressed in hours that Bill or his team will save every year in each of the eight different categories of business modeling benefit. Bill thinks he will save 80 hours a year in training with the model, and another 80 hours each year in communicating with the restaurants. He thinks he will save a couple of days each year—16 hour—working with the auditors.

Benefits	Hours saved	
	one time	each year
Communication		80
Training		80
Persuasion		
Analysis		
Compliance checking		16
As software requirements		
Direct execution		
KM and reuse		
Total benefits	**0**	**176**

Costs	Hours spent	
	one time	each year
Constructing the model	80	
Socializing the model	40	20
Maintenance		40
Total costs	**120**	**60**

Figure 7.1: A model value analysis

Many of these categories show nothing, no benefit. For example, Bill does not intend to analyze the model to make improvements to the process, so the analysis row shows nothing. Similarly, Bill does not intend to use the model as the basis for software requirements, so there is nothing in that row of the benefits table.

Figure 7.1 also shows estimates of the costs of building, using, and maintaining the business process model. These costs include both the time spent by a modeler, and the time spent by people who know the accounts payable process, the subject matter experts who need to work with the modeler to build an accurate model. Building the model is a one-time expense, while maintaining the model is something that must be done every year, as the process changes. Using the model is both an expense while the model is built, and an ongoing expense to explain it to new people.

The model value analysis shows a total one-time cost of 120 hours, and an ongoing annual cost of 60 hours each year. The benefits to Bill and his team are 176 hours per year. The model will almost pay for itself in the first year, and deliver 116 hours of net benefits each year thereafter.

Building a model of the payments process seems to be a good investment on the whole, but it is something of a close call. Often business models deliver significant net value within six or nine months, but this model is not expected to deliver net value until the second year. The benefits are rather modest for this model since the scale of the modeled enterprise is so small: only seven people.

The benefits that Bill expects from the model are all cost savings, hours that he and his team can avoid spending if they have a good model of the payments process. Cost savings are one example of the benefits that can be achieved by a model, but there are many others. In a different situation, a model can lead to additional revenue by persuading a customer to make a purchase. A model can lead to a business process change that results in higher customer satisfaction. A model can lead to better business controls that reduce risk.

Making a Decision Based on Model Value Analysis

Once Bill examines the model value analysis, he must decide what to do. If Bill is cautious, he may decide to forgo modeling his process, as the benefits are small. Or Bill could refine the rather coarse detail of the model value analysis, perhaps translating the hours into dollars. If the analysis was expressed in dollars, Bill could better compare dollars to dollars instead of hours to hours, as hours represent the time of different people, who have different salaries. Or the model value analysis may prompt Bill to look for additional benefits, for additional ways to leverage the model, like implementing a BPMS solution to connect his team with the people they interact with in the individual restaurants. (Chapter 12 describes BPMS solutions.) And of course if Mykonos continues to acquire restaurants, the benefits of the model may increase substantially: Bill's payment team will grow and more time will be saved with a business process model.

Note that a model value analysis does not make a decision for Bill. Rather it informs his decision, providing additional information that helps him better understand the costs and benefits of creating a model. A model value analysis frames the decision of whether to build a model in the terms of a business decision, in costs and benefits, in hours or dollars.

The payments process value analysis shows no (estimated) value for reuse. This is typical. Most business models cannot be used beyond their original scope and purpose. When reuse is possible, it is usually hard to anticipate.

A model value analysis is a useful tool for deciding whether to create a business model. A model value analysis can also help guide the development of a model. A model should be built in ways that help achieve the estimated benefits. For example, the Mykonos payments model will be used for communication, training, and (to some extent) compliance checking.

The simple model value analysis in Figure 7.1 took Bill perhaps an hour to construct and use. That small investment is appropriate for the scale of the decision to be made, as Bill is deciding to invest about 120 hours. Suppose you are considering creating a bigger model, for example a business process model of all of the accounting and finance processes at Mykonos, not just the payments process. When considering a larger model, more time should be spent on the model value analysis. A good rule of thumb is 1%: spend 1% of the total anticipated modeling time on the model value analysis, to decide whether the other 99% makes economic sense.

Scope Failures

Some people find modeling to be very consuming, almost addictive. Modelers grow to like the models they build, and spend more and more time tinkering with them, refining them, making them more accurate and of higher fidelity. Clients of a modeling effort also like the models that are built for them, encouraging further refinement. More and more time is spent modeling. This is another path to model value destruction: spending too much time building and refining a model, more time than the value that can be delivered from the model you are building.

You cannot model everything, and you should not try. To avert model value destruction, you must manage the scope of the models you build. Managing the scope of a model means managing the *breadth* of the model, what the model includes and what the model does not include. Managing the scope also means managing the *depth* of the model: for the elements that are included, how detailed should the model be?

For example, suppose you are creating an interaction model of the Mykonos Corporation, and you want to manage the scope of the model. You decide to model only the internal functions of Mykonos, like accounting and procurement, not the hundreds of individual restaurants that are managed individually. That is your model breadth: internal functions are in, individual restaurants are out. You also decide to only model organizations down to a certain size—5 full-time people, ignoring smaller organizations and functions. That is your model depth: everything down to those that have 5 full-time people, or the equivalent.

Figure 7.2 shows a *scope table* for the modeling Mykonos's organization. The scope table shows what is in and what is out for the breadth: you intend to model only internal

functions, not individual restaurants or organizations outside Mykonos. The scope table also shows what is in and what is out for the depth: you intend to model only organizations of at least 5 full-time equivalents.

	In	Out
Breadth	* internal functions	* individual restaurants * orgs outside Mykonos
Depth	* 5 FTEs or bigger	* less than 5 FTEs

Figure 7.2: A scope table

Model scope is not something you decide once, when planning the model, and then blindly execute. Instead scope is something that you re-examine periodically. Does the scope still make sense? Did we overlook some line items in the breadth, items that are neither in-scope nor out-of-scope? Do some aspects that were once out of scope need to be moved in?

For example, once you have built part of the Mykonos organizational model, you may decide to augment it with the interactions between the organizations. But which interactions are important enough to warrant modeling? You decide to include only those interactions that occur monthly or more often, and that involve at least 10 hours of work monthly, either directly or indirectly. You refine your scope table.

How do you decide what should be in scope? The scope should be driven by the reasons you are building the model. If you are building your model to better communicate to the individual restaurants how the Mykonos shared services work, then that purpose of communicating with the restaurants should determine what is in and what is out. The restaurants need to see the shared functions they will be using, and how a typical restaurant within Mykonos Corp. will interact with those shared services. The individual restaurants will be out of scope—the model does not need to differentiate between Adelina and Zona—but *a typical restaurant* should be in scope so there can be interactions between it and accounting, between it and procurement, and between it and the rest of the shared services. Figure 7.3 shows a refined scope table, reflecting the purpose of the model. The increasing complexity from Figure 7.2 to Figure 7.3 is very typical: as the model is built and new issues are examined, the once simple scope table itself becomes increasingly complex.

	In	Out
Breadth	* internal functions that are shared services * a generic individual restaurant * interactions between the individual restaurant and the shared services	* individual restaurants * internal functional that are not shared services * orgs outside Mykonos
Depth	* 5 FTEs or bigger * interactions monthly or more frequent * interactions of at least 10 hours of work per month	* less than 5 FTEs * less frequent interactions * smaller interactions

Figure 7.3: A further refined scope table

Managing scope requires both business judgment and some ruthlessness. Everyone will want to expand your model: modelers, clients, and subject matter experts. Each person will want to include new items in the breadth, and more detail in the depth, to include the model elements that are important him, and to make the model a closer fit to the world he sees. You must be firm in rejecting these well-meaning desires, increasing the scope of the model only when it makes business sense, not when someone wants it. Models are by their nature never correct. Your job when managing scope is to make models useful, on a budget of limited time and effort.

<Rest of Chapter 7 omitted>