TBM COUNCIL

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TBM AWARDS CASE STUDY

Technology Business Management (TBM) is a methodology, community and category of software for data-driven management of the business of IT.

Fannie Mae

TBM Summary
In a bid to build the next generation of home financing infrastructure, Fannie Mae uses TBM to understand not only technology costs but also business operation cost and time efficiency.   The company is shaping investment in technology and operations with models that allow business users to explore the total costs and connections between applications, business operations and business capabilities – such as turning a pool of loans into a mortgage-backed security.

Program Owner	• Service and Performance Management
Related Initiatives	• Services Transformation
TBM Solutions	• Cost transparency • Application and Infrastructure analysis • Bill of IT
Areas of Analysis	• Applications • Infrastructure Services • Resource Time • Business Capabilities
Outcomes	• Close collaboration with Business on investment • Retired orphaned infrastructure • Re-configured teams and tasks in business operations

Corporate Overview
The Federal National Mortgage Association (FNMA), colloquially known as Fannie Mae, is a government-backed corporation that provides widespread access to affordable mortgage credit. It does that by buying loans from banks, packaging those loans in pools, securitizing the loan packages and selling them to investors.

Industry	Financial Services
Location	Washington, DC
Revenue	$25.8B
Employees	7200

How Fannie Mae Merges IT and Business Operations Data to Target Investment

Fannie Mae is in the midst of another transformation.

During the Great Depression, as borrowers defaulted on mortgages en masse and banks found themselves strapped for cash, President Franklin D. Roosevelt and Congress created Fannie Mae in 1938 in order to buy mortgages from lenders, freeing up capital that could go to other borrowers. In 1968, as the US Government's budget was strained by the war in Vietnam, Fannie and its assets were sold to private investors and, in 1970, Fannie was listed on the New York Stock Exchange, followed by decades of robust growth alongside a rising housing market.

After the 2008 financial crisis, Fannie was placed under the conservatorship of the Federal Housing Finance Agency (FHFA) to guarantee solvency while working on a plan to restructure the secondary mortgage market. Now, Fannie is adopting a TBM approach to technology and business cost transparency in anticipation of helping to build the next generation of home financing infrastructure. Whatever future unfolds from the restructuring plan, Fannie aims to be prepared with facts and insight about the building blocks of technology and process that continue to supply vital liquidity into the American housing market.

IT Was a Black Box to the Business

The Operations and Technology (O&T) division's first response to the new pressure for transparency was to create reports and dashboards to better respond to FHFA requests. One such report had 400 different data points that were input manually, every single day. To be prepared for on-the-fly questions about IT cost, the CIO carried around a thick binder of printed reports.

When another round of company budget cuts came around, O&T was always an easy target, not only because it was the largest budget at Fannie Mae, but also because no one really could tell the business which technology costs were relevant to them.

"At that time we were using technical jargon to communicate costs to the business," remembers Sheenal Patel, client engagement manager for Service & Performance Management (SPM), the O&T group that runs Fannie's TBM program. "The business was allocated a large lump sum of indirect cost. We couldn't explain what the impact would be to the business if we were asked to reduce cost. IT was a big black box."

Gunther Schultz, a vice president in the business operations side agrees. "I didn't know what my applications cost. I just had one big cost number for all applications."

"Our goal wasn't necessarily cost reduction," recalls Gboyega Adebayo, Fannie's lead TBM analyst. "It was cost transparency. We really wanted to peel back the onion and understand the cost of what we do on a day-to-day basis, and we wanted to be able to communicate that to our business partner. We needed data that told a story."

Telling that story was part of an overall transformation from technology provider to service provider.

Changing the Business Conversation with Service Costs

The Service and Performance Management (SPM) team set out to create a prototype of service costs focused on infrastructure. In a proof of concept, they used data from a handful of financial and operational sources to show storage and server costs tied to a handful of applications. Although it took

them several months to compile this incomplete view, the first glimpse of real data in a service context was enough get buy-in to investigate a repeatable solution. Patel explained, "We really wanted a solution that didn't require hiring professional services every time we needed help. We wanted to grow at our pace. That's when we adopted the TBM methodology and configured our own TBM system."

The SPM team worked with the business to define services they understood and cared about. They include Operational Services (business labor and supporting technology to automate the business operations services O&T provides to the company), Application & Integration Services (specific applications-as-a-services as well as infrastructure services), End User Services (e-mail, laptops) and Projects & Investments.

They loaded data from multiple sources into their TBM system and configured the model to flow costs into services they defined within O&T. After several iterations what they discovered is that business and O&T service owners often wanted very different views and each team had different priorities which weren't consistent throughout the organization. TBM Program Manager Mina Han confesses "Our impulse was to make the data perfect, but our idea of perfect wasn't the same as the business." Since then the team has adopted an approach of sharing works in progress with the business, as Han says "to partner together and figure out what provides the most value."

"The TBM service cost model really opened doors and a lot of eyes across Fannie Mae," says Adebayo. "It was the first time application owners could see the total cost of what they were providing and the business could see what they were getting beyond just the project dollars they knew. Application support, risk controls and management overhead, the full cost of infrastructure services ... It was mindboggling when you realize how much it cost to keep a lot of these applications running."

Schultz recounts his reaction from the business side: "The ability to actually isolate an application, double click on it, and understand that it's made up of this much hosting, this much level one support, this much level two support … It   gives me a better questioning path. I can ask why – 'Why is that so high? Why is that app different from that app?' We're having further conversations of how do we allocate that cost? Is that the right methodology? We're finally at the table together because we have a singular currency to discuss. The cost model has definitely brought us closer together."

Part of sitting down together has meant working together on where to invest and where to pare back. "And so now with TBM, we have the ability to show, here are your levers. This is what you can turn off, and this is what you can turn on."

Schultz agrees. "It allows me to help drive the roadmap for which applications we should invest in and which ones we would like to sunset because of that cost."

Using TBM to Improve Operational Systems and Data

Fannie knew it had significant problems with data quality in its IT management systems. Patel was undaunted. "Data has always been a concern here at Fannie, and frankly at every organization I've ever been a part of. It's very easy to get discouraged in the beginning, as there's a lot of inaccuracy, a lot of gaps in the data you're getting. We actually used TBM as a way to fix data, highlighting which specific gaps mattered most by tying dollars to them. That got our business and IT partners engaged to help, not just with data quality, but also to explore different ways to use data to drive business value."

The SPM team also enlisted the support of the CIO, who made it clear that the O&T executive leadership team would be making decisions based on the TBM cost data, and that the rest of O&T was expected to use it as well, and as Adebayo recalls "if you find a problem in the data, you need to help fix it."

Fannie's TBM team has grown very proficient at adding new data into their models. "As we evolved our processes and comfort with the solution we've been able to add new data sources to our model in one quarter of the time it used to take," Han says.

Fannie now has 100 different data sources feeding three inter-connected models for IT services, business operations and enterprise capabilities. Among these sources are invoices from vendors, some of whom have modified their invoice information to fit the cost categories recommended by the TBM Council in the standard TBM taxonomy, ATUM.

"Our vendor management team asked what information we needed to provide better insight into vendor spend," Adebayo recounts. We gave them a copy of the ATUM taxonomy to ask the vendor to give us that same detail. Now invoices flow right into our model every month with the granularity we need to improve insight and make better decisions."

Optimizing Business Processes with Demand Planning

With the IT services model well under way, Fannie began work on creating a "capacity model," an automated approach to labor resource planning and time optimization for its business operations processes. Previously, staff members in business operations would enter time spent each day on various tasks into spreadsheets. Each of the 43 teams maintained its own spreadsheet, which team managers used for time studies.

Today, members on every team enter their time into the TBM system. This centralized approach has the advantage of instantly aggregating results for analysis while also maintaining a uniform taxonomy of 2000+ standardized activities (e.g. Payment Confirmation) that comprise business processes (e.g. Payment) which in turn supports business capabilities (e.g. Settlement). "Now we can see across teams, who's working more, who's working less, who could use some help," explains Schultz. "We can drill into that data, slice and dice to see what our most labor intensive processes are, what steps to improve to make the process more efficient."

Rebalancing teams can be done on a weekly and monthly basis by comparing their utilization ratios to see which teams need help and which teams have the right extra help to give. On a quarterly and annual basis, the capacity model is used to guide headcount planning by linking time per activity to business outputs that drive activity.

For example, say all staff members enter the time they spent on the activity of "attaching trade confirmations," which the TBM system totals for the month (say, 300 minutes). On the back end, a data feed from a business operations system tells the TBM system how many trade confirmations went out that month (say, 100 confirmations). The TBM system divides the total time (300 minutes) by the total number of trades (100) to derive an average activity time (3 minutes per trade confirmation).

To use the model for planning, each activity in the capacity model is associated with one or more business outputs that drive it. In this simple example, the number of trades in a market area are driven one for one by the number of trades in that market. Now, Operations can use a monthly business forecast on trade volumes to convert expected trades into the total staff time needed for confirming trades that month. Performing this analysis for all 2000 activities provides an overall forecast of how many hours of labor will be needed for each activity based on business demand. Tracking how well such forecasts predict actual demand provides an opportunity for the team to fine-tune the model over time.

Schultz explains how the capacity model can be used for headcount planning. "A typical budgeting cycle question is 'Where do you need more people?' You're expected in the Fall to guess what's going to happen next year. With the level of data that we have in our TBM system today, we can project forward and say, 'We expect seasonal upticks like last year in this area so we would add three people here, and over here we see slack and could do with one less.'"

By showing the amount of time spent on each process step, the capacity model also points to opportunities for process improvement. Sometimes that means re-organizing manual activities. "I might look across my activities and see trade confirmations being done on six different teams. Well maybe, at a certain point, it's time to create a trade confirmation team."

The ultimate goal for Fannie Mae's operations processes is straight-through processing: fully-electronic processing with no manual intervention. Exceptions in electronic processing show up as manual activities in the capacity model. Seeing large amounts of time spent on exception handling helps Schultz identify where to focus investment in software development for automation. "I can put together a business case showing where we need new functionality to process some activity in the system. To help prioritize I can balance software investment against the revenue involved with that process. I can have a conversation with the owner of the business that depends on this process and say 'I'm spending 'X' amount of hours working on this for you. If we invested so many dollars, I think I could cut that in half, or eliminate it.'"

The capacity model also feeds into the IT services cost model, providing a holistic view of the cost to run a business process. Schultz adds, "I can drill down and see all those pieces of a process – the software, the infrastructure, the people and tasks, the business outputs. So I can really see, this is what it costs to run this part of the business."

Enterprise Capabilities Model

To prepare for building the next generation of home financing infrastructure, Fannie Mae is building on its TBM models for operational processes and IT services to create a model of its capabilities as a business. Adebayo explains, "The Enterprise Capabilities Model is about breaking down our company's core competencies and figuring out from an IT and operations process perspective, how much does it cost us to do those things?"

The Enterprise Capabilities Model maps technology services and operational processes to the Fannie Mae business capability framework developed and maintained by Fannie Mae's business architecture team. At the top of the model are Fannie's two lines of business, Single-Family and Multi-Family. Beneath that are categories of capabilities, some of which are specific to its industry (e.g. Loan Acquisition, Securitization and Settlement) while others are standard (e.g. Finance and HR.) Within each category are business capabilities, about 40 in all, such as Master Servicing and Disclosures within the industry categories, or Treasury and Accounting within Finance. Some may drill further, such as Accounts Receivable under Accounting.

To create the model, the SPM team worked with the business architecture team and individual line of business owners to decide which applications were dedicated to a business capability and so would receive 100 percent of its costs, and which applications served multiple capabilities.

For each shared application service there was a conversation, and sometimes negotiation, on what percentage of costs would flow to which business capabilities. "There are applications that help with our servicing process which support our single-family loans as well as our multi-family loans," explains Adebayo. "Should we base the allocation on the volume of trades running through the system for each business? Or do we need to consider the complexity of the deals? Those are the kinds of discussions we had."

Today the Enterprise Capabilities Model powers interactive analytics that enable decision-makers across Fannie Mae to see how their piece of the puzzle fits the business. A business owner can zoom in to see the cost and performance of her applications and operational processes while a technical service owner can zoom out to see what applications are consuming which of his infrastructure assets. Adebayo remarks that "the Enterprise Capabilities Model helps us keep conversations with

infrastructure teams out of the weeds, and stop trying to get the model to be so precise that we're losing the value of what we're really trying to get to from a business perspective."

The breadth of the TBM program has helped Fannie Mae drive significant adoption, with more than 300 end-users coming from 70% of its business units. The TBM team's goal is 80%.

Schultz says that data from the enterprise capabilities model flows up to the most senior management at Fannie Mae. "We're using our TBM system to inform strategic decisions on where to invest as a business. By showing what each business capability costs us to run today, what portfolio of assets and processes support it, it puts the data into a firm-wide construct that allows these conversations to occur."

Fannie is working on taking the Enterprise Capability Model further. Today it shows the overall cost to securitize a pool of loans. In the future they plan to drive the granularity down to the average cost to onboard a loan or issue a security – even down to the transactional level of the cost to securitize a particular pool of loans. By mapping revenue against these activities, and even individual transactions, the company plans to add profitability analysis into its arsenal of TBM capabilities.

As a long-time business operations professional, Schultz is no stranger to business and cost analytics. But he sees something unique in TBM. "Activity-based costing has been in the marketplace for a few years," Schultz says. "With TBM we're using those concepts to drive a cost and performance model of our enterprise capabilities with technology and labor. That's a new thing."

Advice for TBM Beginners

The Service and Performance Management team at Fannie Mae offered advice for those just starting out with TBM or considering doing so.

Use TBM analysis to drive data improvement. "Everyone has gaps and inaccuracies in their data," states Patel. "Don't let that be your crutch. TBM lets you tie dollars to those gaps so data owners know where to focus their improvement efforts. And they can use the reporting to see the progress."

Roll out reports as soon as possible. "Don't wait for things to be perfect before rolling anything out," advises Han. "What you may think is perfect in your mind is most likely not what's perfect in your customer's mind, so the key is really to partner together to figure out what works and what provides the most value."

Just get started. "Your data's never going to be perfect, and you're never going to have 100% buy-in before you start," says Adebayo. "But just throw the information out there because when people see it, their eyes will be wide open. They'll see what needs to be fixed, not just for TBM but for all the other reasons that system and data are there in the first place."