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Oklahoma Is Leading the Way on AI-Powered Regulatory and Permitting Reform

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Executive Summary

Oklahoma is using artificial intelligence technology to cut regulatory red tape and bring much-needed transparency to the work of state government. Cutting-edge reforms in Oklahoma's Department of Environmental Quality (DEQ) show how AI can potentially supercharge the otherwise time-consuming process of conducting research for new regulations as well as sorting through old regulations and identifying outdated or unnecessary requirements. DEQ is also exploring ways to use AI to make the permitting process more efficient and customer-oriented, helping the public identify and apply for necessary permits and then track the applications. And AI has the potential to help DEQ employees work much faster and more efficiently, giving Oklahoma businesses the certainty they need to move forward.

Here are some of the results so far:

- AI tool scanned 1962 regulatory provisions and identified potential improvements for 1704 of them, with many proposed reforms offering significant potential savings
- A new permitting tool has the potential to instantaneously tell you which permits you need, help you fill out the application, and then track the agency's response
- A vendor-administered survey showed an average reduction of 91% in the amount of time to undertake certain research tasks (3 hours down to 17 minutes)
- DEQ observed much faster response times, with agency staff potentially now able to complete permitting and rulemaking tasks, and possibly compliance/enforcement tasks, in a fraction of the time
    - For example, a permitting task that would have taken an estimated 40 hours to complete was finished in 1 hour

DEQ's innovative work should serve as a model for other Oklahoma agencies that want to modernize the regulatory process and enhance transparency. And Oklahoma's pioneering reforms can inspire similar work in other states, helping ensure government works for its citizens.

What Oklahoma DEQ Is Doing

Oklahoma DEQ is the primary Oklahoma agency that issues permits and undertakes rulemaking activities to protect the environment and shield the state's citizens from pollution-related harms. Its rules help ensure that Oklahomans make responsible use of the state's extraordinary natural resources.

Over the past several years, DEQ has conducted rule reduction activities by identifying outdated or conflicting rules and systematically removing them from the Oklahoma Administrative Code. However, this process is time-consuming and requires continuous monitoring, and DEQ is continually faced with new problems to solve and new federal programs to implement through rulemaking. Additionally, DEQ's permitting process, though important for ensuring that development occurs responsibly, has often been confusing for small businesses and other regulated parties to navigate. Relatedly, actually issuing a permit or taking any other number of agency actions can sometimes take considerable time, during which time businesses can be unsure how to proceed.

Earlier this year, DEQ partnered with an AI vendor, Vulcan Technologies, to use AI to enhance the agency's work. AI can do things that would be incredibly time-consuming for a human to attempt. It can scan thousands of pages of dense regulatory text almost instantaneously. It can provide quick responses to user-submitted inquiries. And it can help people do their jobs better by identifying hard-to-find sources that might have gone overlooked.

This brief overview explains what DEQ has done so far in a pilot program involving the use of AI and what it hopes to achieve in coming months. As DEQ identifies ways to improve regulations, enhance permitting transparency, and slash response times, it can serve as a model for other Oklahoma agencies to follow.

What the Pilot Program Has Found

So far, the pilot program has identified three main ways that AI can help improve DEQ's work:

First, it has shown potential to quickly identify regulations that may be outdated, unnecessary, or overburdensome.

Second, it has shown potential to make the permitting process much easier to navigate.

Third, it can help DEQ staff do their jobs more efficiently, potentially saving them from doing time-consuming research and/or administrative tasks so they can arrive at decision points faster.

Regulatory Streamlining

DEQ's regulations run numerous pages and contain many discrete requirements. DEQ has been conducting periodic rule reduction evaluations wherein staff have spent time combing through the rules to determine what is out of date, overburdensome, in conflict with federal or state statute, or otherwise unnecessary.

These types of evaluations take an enormous amount of staff effort, whereas AI can do the task in a matter of minutes. The AI tool scanned a total of 1962 separate regulatory requirements and identified possible ways to improve 1704 of them (over 86%).

Of course, it is critically important that human reviewers then go over the results. AI can overlook important aspects of a problem or make inaccurate assumptions. But it takes the human reviewers *far less time* to examine the AI's work than to do the same work from scratch. And AI can sometimes catch things that a human reviewer would miss.

Based on the preliminary scan, the AI tool identified three major types of reforms.

First, it identified many regulations that rely on outdated technology. Up until roughly twenty years ago, most business was transacted through paper. Now, at least in the private sector, almost everything occurs online. Can you remember the last time you went to your bank to cash a check?

As is often the case, government is behind the curve. The AI scan identified over a thousand instances in which a regulation could potentially be updated to accommodate new technology. Here are just a few examples:

- Adding electronic filing in provisions that previously involved paper submission
- Replacing physical mail notification requirements with electronic notification
- Removing outdated language referring to faxing or photocopying of records
- Identifying regulations that required duplicate or triplicate submission, which may have made sense in the paper era but now involves needless busy work

In isolation, none of these changes is all that significant. Each update saves people a few minutes here and there. But when you add up all of the provisions, these updates could save the public and the state government a significant amount of time in the aggregate.

Second, it identified inconsistencies in existing regulations. For example, in one case the regulatory text provided for a 30-day grace period before a penalty was assessed for overdue fees. The appendices to the regulation, by contrast, reflected no such grace period. This is confusing at best and could result in overcharging at worst. Similarly, the appendices provided

for a 15-day delay prior to invocation of revocation proceedings, whereas the regulatory text included a 60-day delay. This could result in unequal treatment between different regulated parties, especially when smaller market players may not be aware of the longer delay.

The AI tool also identified instances in which DEQ was relying on an improper section of the Code of Federal Regulation or was citing a repealed section of the Oklahoma regulatory code. DEQ can now clean up these references to ensure that its citations are all up-to-date.

Third, it identified regulations that exceed federal requirements and could potentially be streamlined to reflect innovative practices in other states. States have been described as "laboratories of democracy": when one state figures out an innovative new approach, other states have an opportunity to do the same thing. Unfortunately, states are often unaware of what their sister states are doing.

AI changes this dynamic. First, it can identify instances in which the state has gone beyond the requirements imposed by federal law. After having done so, it can compare Oklahoma regulations to those in neighboring states and other states that are further afield. If Kansas has identified a more streamlined, less costly approach, then Oklahoma should consider whether it can and should do the same thing.

The AI tool identified several hundred potential changes across all aspects of DEQ's work, many of which could offer substantial possible savings. The most significant potential savings were in the areas of air quality, water quality, and solid waste management. The tool also identified ways DEQ could improve its own internal procedures and save money for Oklahoma taxpayers.

These substantive changes could save the state a significant amount of money. Unlike the administrative changes, which can be quickly assessed to determine whether each change is worth pursuing, each of these changes will need to be carefully vetted by DEQ itself, by stakeholder groups, and by the public before being proposed. Regulatory reforms associated with a government-wide initiative conducted in the Commonwealth of Virginia from 2022-26 produced estimated cost savings of $1.4 billion per year for Virginia citizens, so the potential savings to Oklahoma could be substantial.

DEQ will continue to explore rulemakings to eliminate unnecessary, overburdensome, outdated, and conflicting rules using the list of potential changes generated by the AI tool. During the rulemaking process, DEQ will welcome feedback from stakeholders and the public as to which changes are worthwhile.

Permit Transparency

Permits help ensure responsible use of the state's natural resources. But the permit process can be very difficult to navigate. In some instances, it can take a long time to figure out what permits are needed. Once that's done, the associated forms are often confusing. Applications often get returned due to errors, wasting both the applicant's and agency's time. And once you've applied for a permit, you often have no idea how long it will take to issue.

The AI tools tested during DEQ's AI pilot program sought to solve each of these problems.

First, DEQ has tested a series of chatbots that are intended to help users identify what permits (if any) they need for, say, burning brush on a piece of land. Rather than slogging through pages of legalese, a business owner could hop on the DEQ website, explain what he or she wants to do, and get a customized answer pointing to the necessary permits.

Second, the chatbot offers an AI tool that can help you fill out the permit applications. This works a bit like Turbo Tax: if you type in wrong information, the tool can help correct your response. This reduces the likelihood the application will get rejected, which ends up wasting both your and the DEQ reviewer's time.

The pilot program has tested this technology on so-called General Permits and Permits by Rule, which are among the simpler types of permits DEQ issues. DEQ is currently assessing the budgetary implications of implementing this technology and determining whether to proceed. If it does so, the agency will likely focus on lower-complexity permits which are usually issued in higher volume. This could cut down on the time DEQ spends on the administrative tasks associated with these types of permits.

Further, DEQ permitting staff used an AI large language model (LLM) during the pilot to create web-based tools that will help with quicker rule applicability determinations and interpretations for use during the permit application review process. This LLM can also conduct the first round of DEQ peer review of draft permits. These streamlining functions can help standardize permits and assist permitting staff in issuing permits faster.

Enhanced Workplace Efficiency

If you've ever worked in an office, you know that a lot of time ends up being spent on mundane, mind-numbing work that's nevertheless important to ensuring that everything runs smoothly. Government work is no different. A lot of DEQ staff time ends up being spent doing things like tracking down relevant studies, identifying prior agency decisions, or drafting very basic documents.

AI can be very effective at taking on this grunt work. In fact, it sometimes does an even better job than some humans. Even the most skilled researcher could miss a study or overlook a past decision. AI isn't immune from errors, but it can in certain circumstances do a more comprehensive and deeper analysis than a human reviewer would in a tiny fraction of the time.

The results have been very promising. For example, a survey conducted by the vendor team showed that the average time spent on typical research tasks has dropped from 3 hours down to 17 minutes, which represents a 91% reduction.

DEQ has also been able to get answers to businesses significantly faster. In one case, a permitting task that would have taken an estimated 40 hours to complete was finished in 1 hour.

This has the potential to allow DEQ staff to spend less time on rote tasks and more time on high-value work. Among other things, staff will likely be able to focus on the regulatory streamlining and permit enhancement work described above. And, as stated above, DEQ staff has been able to develop some powerful applications using the LLM that can significantly improve efficiency and workflow. For example, a team in the Air Quality Division has designed a tool that provides flow charts to evaluate federal rule applicability.

More importantly, AI has the potential to ensure that the agency responds as quickly as possible and gives the best possible answer. When businesses are required to wait to receive a permit, hear the results of an investigation, or get an enforcement decision, they can't move forward. Often, that means they're sitting on idle capital and losing significant amounts of money as a result. By substantially speeding up the decisionmaking process, AI can help give businesses the certainty they need.

Finally, AI has the potential to ensure that the agency is making the best possible decisions. It's important to ensure that businesses and other regulated parties are treated fairly. If the agency has faced a similar issue in the past, it should make sure that it's being consistent from case to case. But since the agency files contain many old cases, it can be very difficult for a human reviewer to ensure that he or she is considering all of the relevant precedents. If synced to the agency's internal records database, AI can potentially do this analysis instantaneously, serving up every single precedent and giving the agency reviewer the information needed to make a consistent and fair decision.

What Comes Next

DEQ's pilot program has already produced some impressive results. DEQ staff are using AI to help them do their jobs more effectively. And the regulatory streamlining and permitting

reforms promise to produce a regulatory environment that is far more transparent and less burdensome.

DEQ will continue reviewing the regulatory reforms and preparing regulatory packages for public review and will continue to roll out regulatory reforms on a regular basis. It will also continue evaluating the feasibility of procuring the permitting chatbot technology that would assist permittees in selecting and completing their permit applications.

DEQ is actively exploring opportunities to work with the legislature and Oklahoma businesses and citizens to make these reforms a success. It is also exploring ways to partner with other Oklahoma agencies, which can draw on DEQ's experience to implement similar reforms.