Investigation Report

EVERETT & VANDERWIEL, PLLP

Submitted to:	Chad Thuet Director of Human Resources Minnesota IT Services
Subject of Investigation:	Paul Meekin Chief Business Technology Officer Minnesota IT Services
Topic of Investigation:	Performance Concerns
Prepared by:	William J. Everett
Date:	February 8, 2018

INTRODUCTION

Paul Meekin is a Chief Business Technology Officer ("CBTO") employed by Minnesota IT Services ("MNIT"). MNIT placed Meekin on investigatory leave effective November 9, 2017 following concerns about his performance while leading a large and highly visible technology project. MNIT, acting through Minnesota Management and Budget, engaged this firm to investigate Meekin's performance both with regard to the technology project as well as his other duties as a CBTO. Work on the investigation commenced on November 15, 2017 and concludes with the submission of this report.

DISCLAIMER

Everett and VanderWiel, PLLP has been engaged by the Minnesota IT Services to conduct an investigation and to prepare and submit a report that includes findings of fact and conclusions as to what actually transpired. In so doing, it is necessary for the investigator to weigh evidence that is at times ambiguous or conflicting, and to reach conclusions based on this evaluation of the evidence. Accordingly, this report constitutes the investigator's opinions as to the events that occurred.

OVERVIEW

This overview is not a full recitation of all relevant facts. It is intended only to orient the reader to the events and issues addressed in this report. Detailed findings and analyses and summaries of the evidence follow this overview.

Project history and objectives

Minnesota IT Services is an executive-branch agency of the State of Minnesota that provides Information Technology services ("IT") to over 70 agencies, boards, and commissions.[1] Chief

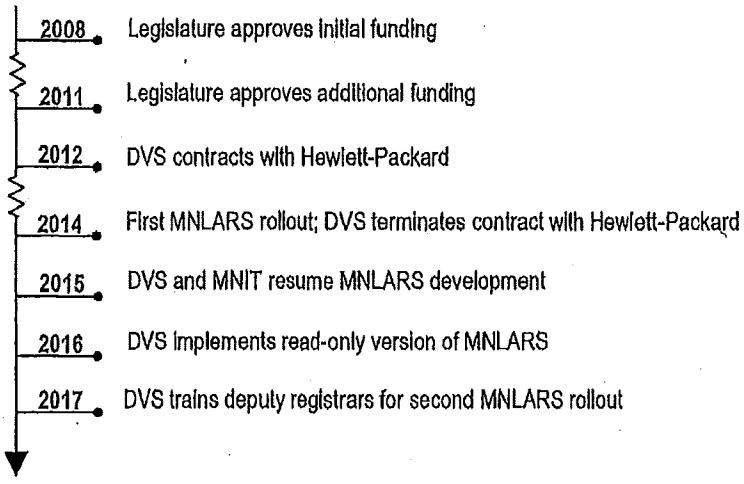
[1] *See* Minnesota IT Services website, "Who is MNIT?" https://mn.gov/mnit/about-mnit/who-we-are/.

Business Technology Officers ("CBTOs") are senior, executive level leaders within MNIT.[2] They serve as the Chief Information Officers ("CIOs") for the agencies to which they are assigned. CBTOs are responsible for managing the IT services within their agencies so they are aligned with MNIT's overarching policies.

Meekin was assigned at various times to be the CBTO for the Department of Corrections ("DOC") and the Department of Public Safety ("DPS"). The DPS encompasses a number of divisions, including the Bureau of Criminal Apprehension ("BCA"), the Minnesota State Patrol ("MSP"), and Driver and Vehicle Services ("DVS"). The Driver and Vehicle Services Division is charged with the responsibilities of testing people for and issuing drivers' licenses, issuing state identification cards to non-drivers, and issuing vehicle license plates, titles, and registrations.[3]

In 2007, the Office of Enterprise Technology (a predecessor agency to MNIT) "recommended a complete redesign of DVS processes and information systems due to [] weaknesses it identified" in the legacy system, which was approximately 30 years old.[4] Acting on that recommendation, the State commenced work on the Minnesota Licensing and Registration System ("MNLARS") project to develop new systems and bring them on line. The Office of the Legislative Auditor ("OLA") outlined the history of the MNLARS project in a report issued in June 2017:[5]

Exhibit 1: MNLARS Timeline



In 2012, the State of Minnesota entered into a contract with Hewlett-Packard ("HP") to develop MNLARS. For reasons not germane here, the State and HP terminated the contract in 2014, before the work was complete. MNIT and DVS researched the options available for completing

[2] Meekin Position Description, p. 1.
[3] *See* DVS website, "What We Do" https://dps.mn.gov/divisions/dvs/about/Pages/default.aspx
[4] Office of the Legislative Auditor, *Minnesota Licensing and Registration System (MNLARS)*, (St. Paul, June 2017) at 2 (hereinafter, "OLA Report"). https://www.auditor.leg.state.mn.us/sreview/mnlars.pdf
[5] OLA Report at 4.

work on the system and concluded that there was not another vendor in the marketplace that could create the system that the State needed. Accordingly, MNIT and DVS decided to work in partnership with one another to design, build, and deploy the new system.[6] When finished, the State plans for MNLARS to include two major components: (1) vehicle services, which will include, *inter alia*, vehicle titles, transfers, and registration renewals; and (2) driver services, which will support testing for and issuing driver's licenses and issuing identification cards for non-drivers. DVS and MNIT decided to develop the vehicle services capabilities first, in response to a law passed in 2013 authorizing counties to begin collecting variable taxes on vehicles ("wheelage taxes") beginning in January 2018.[7]

The development process

A software development project such as MNLARS requires the efforts of both "technical" staff (or "developers") and "business" staff. The technical staff are responsible for designing, writing, and testing the computer software. The business staff must in the first instance describe the business functions and activities that the software will automate or support, and must later test the software to ensure that it meets their requirements. As the CBTO for the Department of Public Safety, Meekin was responsible for the technical side of MNLARS.

Between 2012 and 2014, when HP was still on the project, the State made the decision to begin using an "Agile" framework (or methodology) for developing MNLARS. This framework was new to the State and is a departure from the more traditional "Waterfall" approach, which involves going through the steps of defining requirements, and planning, developing, testing, and releasing software in a somewhat rigid order. With Agile, software is planned and developed in increments that add functionality to the overall system. The Agile framework calls for developers and business people to work together in small teams ("scrums") to plan their work and to develop and deliver new components during scheduled work periods. A "scrum master" functions essentially as a project manager for his or her scrum team.

[redacted]

Developing the MNLARS system required a substantial workforce on the technical side, which MNIT did not have in 2015 when undertaking the in-house design and build effort. MNIT staffed to meet this need primarily by contracting with vendors rather than hiring or transferring employees. The technical side came to be comprised of approximately 55 contractors and 10 to 12 State employees, who were organized into four to six scrum teams. The organizational structure for the technical side (also known as the "Release Train") was flat in the sense that there were no State-employed managers or supervisors between [redacted] and the 55 or so private contractors and line-level State employees working on the project.

[6] OLA Report at 5.
[7] OLA Report at 5.

MNLARS users

Although DVS is charged with managing the State's vehicle registration and titling activities, it does not provide these services directly to the public. Services are instead delivered through deputy registrars, which may be private corporations, cities, or counties. DPS and MNIT recognized that these deputy registrars, together with auto dealers, would constitute the primary users of MNLARS once it was brought online. MNIT and DPS understood that MNLARS would change business processes in ways that would place additional burdens on the deputy registrars. Before MNLARS, registrars received vehicle registration and titling paperwork from customers, which they sent to DVS for processing. Once MNLARS was implemented, deputy registrars would be responsible for entering data into the system and processing transactions in real time as customers waited at the counter. It was foreseeable that deputy registrars would find this change unwelcome, even if the system were to work flawlessly.

Oversight and auditing of the MNLARS development work

In 2015, the State engaged Software Engineering Services ("SES") to provide independent validation and verification ("IV&V") services on the project. SES audited and issued findings as to project management and controls, risks, and defects. Its duties did not, however, include evaluating the computer software that was in the process of development.

[redacted] held meetings with Meekin [redacted] every two or three weeks during the development process to keep abreast of the project. During these meetings, Meekin [redacted] told [redacted] that MNLARS was being properly managed, was progressing well, and would be successful. In 2016, [redacted] called for and conducted a detailed review of the MNLARS architecture. In the early summer of 2017, the Office of the Legislative Auditor conducted a limited review of the MNLARS project. The OLA reported that "the management and security controls DVS and MNIT are currently developing and implementing appear to be adequate."[8]

MNLARS launch and problems

MNLARS, code version 1.2, was released on July 24, 2017. The launch was not successful. A November 22, 2017 article from the St. Paul Pioneer Press encapsulates some of the frustrations with the system:

> The $90 million system, known as MNLARS, has been the target of public ire since an admittedly botched rollout in July forced customers to wait in lines as long as two hours for once-routine transactions that were unable to be completed. License plate renewals and transfers, new plates, new titles and duplicate titles are among the tasks that have been affected — and still are.[9]

Three factors which contributed to the troubled rollout are: (1) some software developers took inconsistent approaches to their work, such as using different conventions for calculating fees,

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[8] June 2017 Letter of James Nobles to Members of the Legislative Audit Commission, https://www.auditor.leg.state.mn.us/sreview/mnlars.pdf.

[9] "DMV problems lead to shakeup at state agency; project leader on leave." (St. Paul Pioneer Press, November 22, 2017), https://www.twincities.com/2017/11/22/dmv-problems-lead-to-shakeup-at-state-agency-project-leader-on-leave/.

identifying deadlines, and determining when one month ends and another begins; (2) software developers used an automated system for developing computer code that was ill-suited to a system on the scale of MNLARS;[10] and (3) MNLARS was not adequately tested prior to release.

ISSUES PRESENTED

This report addresses the following issues:

1. Whether Meekin provided meaningful oversight of the MNLARS project after placing [redacted]

   The evidence shows that after [redacted], Meekin maintained no communications with others working on the project, ceased providing meaningful oversight, and fostered an environment in which [redacted] decisions could not be questioned or challenged.

2. Whether Meekin exercised reasonable managerial oversight to ensure that MNLARS was adequately tested prior to release.

   The evidence shows that Meekin was on notice of a risk that testing of MNLARS might not be completed before the system went live, but Meekin did not exercise reasonable diligence in addressing the concern.

3. [redacted]

4. Whether Meekin failed to ensure there was an adequate complement of State-employed managers working on the MNLARS project.

   The evidence shows that Meekin [redacted] were the only managerial-level State employees overseeing the work of more than 50 or 60 contractors and employees on the MNLARS project. Meekin's failure to assure that there was an adequate complement of State employees who could discharge managerial functions relating to MNLARS was not in keeping the expectations resting on him as an IT executive.

5. Whether Meekin failed to take timely and appropriate action to [redacted] after [redacted] announced [redacted]

   The evidence shows that Meekin did not have a [redacted] and did not begin moving to [redacted] until months after [redacted] informed him of [redacted]

[10] *See* Meekin interview summary.

[redacted] *Meekin did not conduct himself in keeping with the expectations resting on him as an IT executive.*

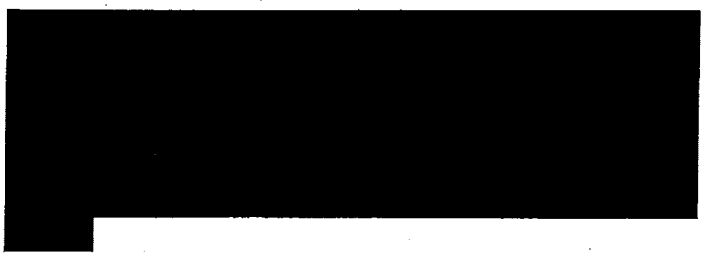
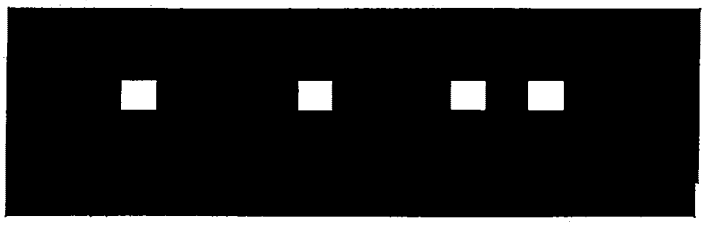
6. Whether Meekin failed to assure that the BCA was provided with acceptable customer service.

The evidence shows that Meekin's approach to dealing with the BCA was not in keeping with the expectations resting on him as a MNIT CBTO.

[redacted]

WITNESSES INTERVIEWED

	Witness	Date(s)	Summary
1	[redacted]	11/21/17	[redacted]
2	[redacted]	11/27/17	[redacted]
3	[redacted]	11/27/17	[redacted]
4	[redacted]	11/29/17	[redacted]
5	[redacted]	12/07/17	[redacted]
6	[redacted]	12/08/17; 01/16/18; 01/23/18	[redacted]

7	[redacted]	12/14/17	
8	[redacted]	12/14/17	
9	[redacted]	12/14/17	
10	[redacted]	12/29/17; 01/18/18	
11	[redacted]	01/03/18	
12	[redacted]	01/08/18	
13	[redacted]	01/08/18	
14	[redacted]	01/09/18	
15	[redacted]	01/10/18	

16	[redacted]	01/10/18	[redacted]
17	[redacted]	01/10/18	[redacted]
18	[redacted]	01/16/18	[redacted]
19	[redacted]	01/17/18	[redacted]
20	[redacted]	1/18/18	[redacted]
21	Paul Meekin	1/26/18	Meekin is a MNIT employee and served as the CBTO for both the Department of Public Safety and the Department of Corrections. Meekin was relieved of responsibilities for the Department of Corrections in around September 2017. Meekin described his work and oversight with respect to MNLARS and responded to concerns about his performance and behavior.

FINDINGS AND ANALYSIS

Finding No. 1: Meekin [redacted] of the MNLARS project and did not provide meaningful oversight.

Meekin acknowledges there were flaws with the MNLARS software that resulted in its inadequate performance, but he denies that he knew about these flaws until after MNLARS's release. He is bemused in hindsight that no one brought the problems that resulted in these flaws to his attention before the release. The evidence shows, however, that Meekin [redacted] maintained no communications with others working on the project, ceased

providing meaningful oversight, and fostered an environment in which [redacted] decisions could not be questioned or challenged.

EVIDENCE[11]

[redacted] stated that when [redacted] At that time, Meekin stepped back from the project to focus on his other duties. [redacted] believes that [redacted] and Meekin information about the project but did not inform them of the problems. Meekin told [redacted] in retrospect, that he had been unaware that MNLARS was not ready for launch when it was put into service. Meekin became aware of this only in September, when he began "digging into" the problems with the rollout and speaking with staff.

[redacted] observed that Meekin did not provide [redacted] with strong leadership. Instead, he essentially "turned the project over to [redacted]" Meekin relied solely on [redacted] to provide him with information about MNLARS and did not establish feedback loops with people working on the project. Meekin did not have "real conversations" with such people to learn what was really happening. Meekin was also "protective" [redacted] "You didn't take a concern about [redacted] to Paul." [redacted]

[redacted] impression was that Meekin held [redacted] "on a pedestal." At one point, Meekin counseled [redacted] to "do what [redacted] was doing."

[redacted] observed that Meekin was ineffective in managing [redacted]. This became problematic because [redacted] To [redacted] it appeared that [redacted] "had full control to do whatever [redacted] thought was in the best interests of the project" and that Meekin deferred to [redacted]

[redacted] observed that Meekin was unable to adapt his management style to the needs of the MNLARS project. Meekin prefers to be hands-off and manage projects from a high level. With MNLARS, he did not "dive in" when he should have. Meekin also failed to manage [redacted] effectively. It was clear that Meekin accepted [redacted] vision for and decisions about the project without question. BCA personnel felt that [redacted] hen BCA voiced concerns about the project. [redacted] Meekin did not seem open to hearing concerns about [redacted] From [redacted] perspective, there were many good people on the MNLARS team who were not being heard.

[11] The evidence sections in this report are based on witness statements and identified documents. The witnesses from whom the evidence is derived are identified in bold typeface. Complete witness statement summaries follow the Findings and Analysis section.

[redacted] relayed that the general consensus of the MNLARS team was that Meekin was overly reliant on [redacted]. The MNLARS team viewed the project as [redacted] show." When team members raised concerns to Meekin, he would say, "asked and answered" even though the issues had not been resolved. People came to feel like they were putting their jobs on the line by continuing to raise concerns about the project, so they stopped doing so.

Meekin acknowledges there were errors and inconsistencies in the MNLARS software that became problematic. After MNLARS launched in July, "there were a lot of surprises when problems started surfacing."

Meekin stated that he bears responsibility for the defects only because "the buck stops" with him as CBTO, and not because of any fault on his part. Meekin relied on [redacted] to manage the project and to keep him informed. He feels [redacted] Meekin asserted that the problems with the software resulted from the way [redacted] the project. Meekin learned in September 2017 that the project architects had been frustrated with [redacted] because [redacted] did not enforce their decisions, which resulted in programmers taking inconsistent approaches. [redacted] told the software developers that they should "solve problems" and that the architectural guidance they had received was not important.

Meekin did not disagree with others' observations that he preferred to manage from the 20,000-foot level. Meekin explained that as the CBTO for two agencies, he was spread too thinly. If he bears any fault at all, it is for not "taking a stand" earlier to shed his responsibilities for DOC so he could devote more attention to MNLARS. Meekin also has a "strong philosophy" that others sometime disagreed with—that he would not do their jobs for them. If a subordinate asked Meekin a question, he might tell the other person that it was his or her job to figure out the answer.

Meekin admitted that, prior to the launch, he did not have any communications with anyone who [redacted] In hindsight, Meekin is bemused that no one ever alerted him to any issues with the project. The investigator informed Meekin of others' observation that he seemed to be overly deferential [redacted] and would not review [redacted] decisions. Meekin responded that he was hesitant to override any decisions that [redacted] made because he did not want to undermine [redacted]

ANALYSIS

The evidence shows that Meekin failed to provide adequate oversight of the MNLARS project.

Meekin acknowledges that the MNLARS code was flawed, and that many of the flaws came about because [redacted] undermined the authority of the project architects [redacted] failed to enforce their decisions across the various development teams who were working on different components of the system. Meekin attempts to evade responsibility for flawed code going into production by saying that he did not learn about the problems until later (in around September) when he became more closely involved with the project and the people working on it. The question is not,

however, whether Meekin knew about [redacted] and the flaws that resulted before MNLARS was rolled out. The question is whether a reasonable, effective manager would have learned of and taken action to address those circumstances earlier, before they evolved into significant problems.

Meekin stated that he relied on [redacted] to run the MNLARS project and keep him informed. The witnesses confirm this to be true. [redacted] corroborates that [redacted] was given complete charge over all technical aspects of the project and the authority to make all related decisions. [redacted] observed that Meekin essentially turned the project over to [redacted] stated that [redacted] appeared to have had full control to do whatever [redacted] thought was in the best interests of the project. [redacted] relayed that the MNLARS development team felt that Meekin was overly reliant on [redacted] and the project became [redacted] show."

Although empowering [redacted] to lead the project was not necessarily unreasonable, Meekin failed to put any mechanism in place to protect the project against any errant decisions that [redacted] might make. Meekin attempted to guide the project from a high level but combined this with a failure to establish or maintain any lines of communication with workers under [redacted] who were in a position to see if things were going awry. He relied on [redacted] to keep him informed as to all aspects of the project and cultivated no sources that might provide him with information, should [redacted] fail to keep him adequately informed.

It is evident that Meekin failed not only to proactively seek information from others, but also demonstrated an unwillingness to listen to concerns that others sought to present. Meekin's claim of being surprised that no one came to him with concerns about the project prior to launch rings hollow. The evidence shows that Meekin fostered an environment in which questioning [redacted] judgment or decisions was either discouraged or not permitted. [redacted] observed that people on the project felt that Meekin was protective of [redacted] and, "You didn't take a concern about [redacted] to Paul." [redacted] observed that Meekin did not seem open to hearing concerns about [redacted] and there were many people on the MNLARS team who were not being heard. [redacted] relayed concerns from the MNLARS team that Meekin would not entertain questions or concerns about decisions [redacted] had made. The evidence does not definitively establish that failures could have been avoided if Meekin had positioned himself as a willing recipient of concerns from the project team, but Meekin's failure to do so certainly increased the odds that he would *not* learn of those concerns until it was too late.

Meekin responds to criticisms of his deference to [redacted] by saying that it is a sound principle of effective leadership to refrain from undermining downstream managers, and that as a result he was hesitant to override any decisions that [redacted] made. While there may be validity to that principle when practiced in moderation, MNLARS's successful launch was of the highest importance to MNIT and DPS. It follows that it was necessary for Meekin to balance his deference to and support of [redacted] with the need to be aware of and consider information about any risks to a successful launch. Meekin did not do this.

Meekin explained he was overtaxed by his duties as CBTO for both the DPS and the DOC and that it was unreasonable to expect that he could provide any more oversight for MNLARS than he did. Yet even if true, this does not excuse Meekin for building a hedge of deference around

[redacted] and showing an unwillingness to entertain the possibility that there were problems warranting attention. Moreover, Meekin's explanation in this regard is not credible. Meekin asserts that he repeatedly told MNIT leadership he did not have sufficient time to lead the MNLARS project. He stated that in the spring of 2017 he "genuinely asked" to be relieved of responsibility for the DOC, but MNIT responded that it wished to keep him in both roles for a while longer. Meekin's claim is not supported by the evidence. [redacted] was overseeing the MNLARS project and Meekin was meeting with him regularly. If Meekin felt his workload was negatively impacting MNLARS, it would have been logical for Meekin to broach the topic with [redacted]. According to [redacted] Meekin never did so. [redacted] at the time MNLARS was being developed, confirms that Meekin told him in early- to mid-2017 that he was having difficulty covering all his obligations. [redacted] recalls telling Meekin at the time that it was "his call" to discontinue oversight of the DOC, but at that time Meekin did not ask to be relieved of his duties.[12] [redacted] recalls that Meekin told [redacted] in August 2017 that DOC should be removed from his portfolio so Meekin could concentrate on MNLARS.

Meekin stated that in the fall of 2017, he "finally" told his superiors that MNLARS was taking up too much of his time and that he could not adequately serve the Department of Corrections. Meekin believes the timing of this conversation coincided with [redacted] The evidence shows that Meekin did not unambiguously communicate his need to be relieved of responsibilities at the DOC prior to sometime in August, after the MNLARS launch.

In any event, even if Meekin was overtaxed, it does not excuse him for unreasonably insulating himself from communications that could have apprised him of concerns about the health of the MNLARS project. He chose to rely on the information that [redacted] provided him and made it clear to staff that he would not be receptive of concerns or criticism from other sources. This increased the risk that flawed judgments or decisions by [redacted] would remain undetected and unresolved.

Finding No. 2:	**Meekin failed to exercise reasonable managerial oversight to ensure that MNLARS was adequately tested prior to release.**

Meekin was on notice of a risk that testing might not be accomplished before the software was released, but he did not exercise reasonable diligence in addressing the concern. As a result, the MNLARS software was put into production without sufficient testing. Meekin's failure to ensure that MNLARS was tested adequately was a failure to exercise reasonable managerial diligence and competence.

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[12] [redacted] and has no stake in the outcome of this investigation. [redacted] recollection on this point was firm and there is no reason to doubt it.

EVIDENCE

Standard of care as to testing:

The consensus of the witnesses is that it would be professionally irresponsible to release a project of MNLARS's size and complexity without first subjecting it to full regression testing. Regression testing is:

> the process of testing changes to computer programs to make sure that the older programming still works with the new changes. * * * Test department coders develop code test scenarios and exercises that will test new units of code after they have been written. These test cases form what becomes the *test bucket*. Before a new version of a software product is released, the old test cases are run against the new version to make sure that all the old capabilities still work. The reason they might not work is because changing or adding new code to a program can easily introduce errors into code that is not intended to be changed.[13]

[redacted] stated that full regression testing and load testing (see next section) would have exposed the errors in the underlying computer code. [redacted] stated, "Doing these tests in the IT world are no-brainers, and the failure to do them [is] professionally embarrassing."

[redacted] stated that failure to run full regression testing, at least on an automated basis, would not be in keeping with MNIT's expectations for a project of this size and would be a departure from best practices. It is a fundamental best practice across the industry to ensure a product is fully tested before releasing it.

[redacted] stated, "It would be irresponsible to cease regression testing in the months leading up to the release." Ensuring full testing is something that "any developer worth their salt" would do. It would be unusual to cease regression testing, and it should have been reported to [redacted] if regression testing had been discontinued.

[redacted] expectations to Meekin:

[redacted] stated that [redacted] expressed an expectation to Meekin that MNLARS would be fully tested before being released into production. [redacted] recalled that [redacted] talked "a lot" to Meekin [redacted] about testing around the fall of 2016. [redacted] cited an example of an earlier high-profile project that had had problems upon its roll-out and advised them, "You can't shortcut the testing" and, "It's a lot easier to do less right than to do more and fix it after the fact." Building time into a project schedule to test for and repair defects is "basic batting practice stuff" in software development. In their ongoing status reports, Meekin [redacted] "really focused on quality and deferred the release to July." [redacted] recalled that both Meekin [redacted] assured [redacted] "that a quality product would be released."

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[13] *See* Definition: Regression Testing, http://searchsoftwarequality.techtarget.com/definition/regression-testing.

Notice to Meekin of risk of incomplete testing:

Software Engineering Services: The State of Minnesota engaged Software Engineering Services ("SES") to provide independent verification and validation ("IV&V") services. SES examined MNLARS project documentation, attended project meetings,' conducted interviews, and issued quarterly and annual audit reports on the project.

[redacted] on the project. [redacted] indicated that not completing testing before MNLARS was released was one of the "pressing" risks on the project. [redacted] asserted that quarterly audit reports dating back to 2015 demonstrate that SES clearly and repeatedly informed that there was a risk that testing might not be fully completed by the time that the MNLARS system would go live.

The audit reports to which [redacted] referred show:

- Quarterly Audit Report No. 1 (December 3, 2015): SES identified a risk that there might not be time to bring a Quality Assurance team on board, and for the team to plan and execute its work prior to the release of MNLARS. (*Id.* at 21.)

- Quarterly Audit Report No. 3 (June 3, 2016): SES noted that the limited time for completion of the project increased the risk that testing, fixing defects, and re-testing could not be completed. (*Id.* at 15.)

- Quarterly Audit Report No. 4 (December 7, 2016): SES identified the risk that, "Test execution; applying defect fixes; and successful re-testing will not be completed in time for scheduled Releases." (*Id.* at 25.) SES rated this risk as "HIGH."

- Quarterly Audit Report No. 5 (March 29, 2017): The report included the same risk description as Report No. 4. (*Id.* at 22.) The risk rating changed from "HIGH" to "Now a project issue."[14] (*Id.*)

Meekin's response to the notice:

Meekin admitted that he read the SES audit reports submitted to the State. He dismissed the significance of the initial audit report by saying that initial software development audit reports routinely warn of the risk of running out of time for testing, because testing is the last step in the process and it "always gets shorted."

Meekin discounted the later risk reports based on the information he was hearing from others at the meetings leading to the July 24 release: People were "genuinely enthusiastic" at the Go-live meeting; and the defect list showed fewer than 70 defects before the launch. "When we went live... we had under 100 defects reported with the business. That's a low number in the industry."

[14] A risk is something that might happen in the future, whereas an issue is something that is in the process of happening. That is, an issue is a risk that has come to fruition.

Meekin was aware that SES had elevated the lack of time for testing from a risk to a project issue. [redacted], however, told Meekin that the defect list was "on track" and that they were "good to go." Meekin maintains that it was up to the technical and business teams to alert him if there were problems with testing and they did not do so, so Meekin assumed that MNLARS was adequately tested and ready for release.

Status of regression testing before release:

Sogeti report: The State of Minnesota engaged Sogeti to provide quality assurance ("QA") services on the project. Sogeti issued a report dated November 9, 2017 that detailed the testing it had performed to date. The report, which is entitled *Test Report MNLARS as of 11/09/2017,* states at page 4 that full regression testing was last executed on Program Implement ("PI") 8. It further states, "Regression execution stopped after Sprint 9.5. No full-regression suite execution was allowed due to time pressure for the release code. * * * Automation was used to solely test subsequent incremental code updates."

[redacted] stated that Sogeti told [redacted] that full regression testing was not allowed for approximately three months prior to the July 24, 2017 release.[15]

[redacted] stated, "We didn't have full regression testing before the release." [redacted] indicated that "PI-9" ended on May 16, 2017, approximately nine weeks before the release.

[redacted] stated that [redacted] debriefed Sogeti personnel to learn what had gone wrong with the project and was apprised of the following:

- Sogeti was aware that coding for the project had not been standardized. As a result, Sogeti felt they needed to do more testing, not less. According to Sogeti, MNLARS leadership kept telling Sogeti to cut the scope of testing and to do the bare minimum.

- Work on the software continued concurrently with testing (i.e., there was no "code freeze")—meaning that the software continued to change throughout the testing cycle. This meant that some changes would be released into production without having first been tested.

- Sogeti was aware of the limitations on their testing and the risks that resulted but was not given a voice into the "Go-live" decision.

Sogeti prepared a PowerPoint of its analysis of the root causes or the problems with MNLARS following the July 24, 2017 release. [redacted] forwarded the analysis to the investigator. It states:

[15] There are two kinds of regression testing: automated and full (or manual). [redacted] related that there is a substantial difference between automated regression testing and full regression testing as those processes apply to MNLARS. The automated regression testing capabilities that had been developed within MNLARS only tested a fraction of the user scenarios (approximately 12 to 25%). Conducting only automated regression testing left 75% of the potential user scenarios untested.

Regression Testing

- No manual regression testing was done before go live [sic] for [version] 1.2 and the risk was raised to project management.

- All the hot fixes [were] going out with automated test coverage only. This was a decision and accepted risk by the management. We could not verify the full impact of these defects fixes.

- There was no "true" Code Freeze in place for the testing team to execute their regression suite before going live. For example, testing has started on regression and there are still 34 defects (29 of them major) for release 1.10.

[redacted] stated that the pre-release testing of MNLARS did not identify as many defects as would be expected in a project of this kind. To [redacted] this raises a question as to whether the pre-release testing was robust enough to expose defects. [redacted] opined that when one sees ongoing defects over a number of months following a release, it is suggestive of—but does not conclusively establish—that the pre-release testing was inadequate. [redacted] perception was that the people leading MNLARS were under increasing time pressure, which came at the expense of doing thorough testing.

[redacted] indicated that [redacted] believes that the launch of MNLARS did not actually increase the number of errors and problems with the program, but merely exposed the ones that had remained undetected due to inadequate testing.

User acceptance testing:

[redacted] indicated that there should have been a segregation of duties between the development of the software (the development team) and acceptance of the software (the business team). In this case, those performing the testing reported to Meekin.

[redacted] stated that the business side never really understood their role with regard to user acceptance testing. [redacted] encouraged [redacted] to "call a foul" because the organizational structure was set up so that [redacted] ultimately had charge over the group (Sogeti) that conducted the user acceptance testing.

Meekin stated that he learned from [redacted] that DVS had said they did not know how to conduct UAT. Meekin responded by modifying the Sogeti contract to include doing work on user acceptance testing and management of the UAT process.

[redacted] related that DVS staff did not have the time or skill set to conduct proper user acceptance testing. There was no plausible path forward for completing UAT without enlisting assistance from Sogeti. [redacted] has been involved with product testing for 25 years, and in [redacted] opinion the UAT on MNLARS was conducted in a reasonable manner and was adequate.

Discussions with Meekin about testing:

[redacted] related that [redacted] heard Meekin say that the MNLARS team did not do nearly enough testing before the product release. [redacted] recalled that in March 2017, Meekin commented that MNLARS could have been released earlier because, "80% is good enough in IT." [redacted] mentioned this comment because [redacted] felt it was striking how Meekin underestimated the impact that problems with MNLARS would cause when it went live.

[redacted] related that Meekin had informed [redacted] prior to the ten-week adoption phase (circa April 2017) that automated testing should expose most of the problems with MNLARS, and that the deputy registrars would identify other issues.

[redacted] relayed a statement from Sogeti personnel, i.e., those responsible for testing MNLARS, that they had been raising concerns to Meekin for over a year.

Others' understandings as to testing:

[redacted] stated that [redacted] was advised by the MNLARS team that the system had been through quality assurance testing and user acceptance testing. [redacted] relied on those representations and informed a key legislator that [redacted] was "very confident" that MNLARS would function properly when released. [redacted] believes that [redacted] should have been advised as to the risks that MNLARS would not function adequately, given the level of pre-release testing that was actually done.

[redacted] stated [redacted] was under the impression that full regression testing had been done all the way through the project, at least on an automated basis. It was never communicated to [redacted] that full regression testing was not being done, and it would have been shocking to [redacted] to learn otherwise.

[redacted] related [redacted] assumed that MNLARS had been subjected to full regression testing, and that the testing continued up to the release point.

Load testing:

Load testing is "the practice of sending simulated... traffic to a server in order to measure performance" and to determine whether the server has adequate hardware resources; whether it performs quickly enough to provide users with a good experience; and whether the application runs efficiently.[16] The use of large, realistic test environments is more apt to expose problems with the system being tested, but such environments are likely to be time consuming and expensive to create.

[redacted] stated that Sogeti informed [redacted] that the load testing conducted prior to release was not adequate. Sogeti had a state-of-the art system for conducting load testing. They used this system but were given an "undersized environment" to test. [redacted] Meekin indicated it would have

[16] An Introduction to Load Testing, https://www.digitalocean.com/community/tutorials/an-introduction-to-load-testing.

cost an additional $300,000 to do the testing in a full-sized environment, so they decided it would not be done.

[redacted] stated [redacted] found flaws with MNLARS after its release—there was "crisscrossing between domains" that resulted in data collisions and, in turn, system slowdowns. [redacted] believed that these problems were not identified prior to release because the MNLARS team did not conduct adequate load testing.

Meekin stated that [redacted] to be built on Amazon Web Services to perform the equivalent of load testing before Version 1.2 was launched. Meekin believes that *after* the July 24 release, Sogeti came to him with a proposal for having a "full environment" for testing. Meekin was still negotiating with Sogeti over the costs and steps necessary for this work when he was placed on administrative leave.

Testing during the rapid repair phase:

[redacted] stated that after the MNLARS release in July, the development teams tried to do "hotfixes" overnight to remedy programming errors and performance problems. [redacted] understood that they were sending out the fixes without much testing.

[redacted] learned in [redacted] assessment of MNLARS that full regression testing was not conducted when the hotfixes were being developed and released, which resulted in a "Whack-A-Mole" experience: fixing one thing would inadvertently create other problems.

[redacted] initially assumed that the quickly constructed repairs that Meekin's team sent out after the July 24 release were subjected to full regression testing. [redacted] started to suspect Meekin's team was rolling out untested hotfixes when [redacted] heard that repairs to the system were causing other problems.

[redacted] stated that the need for full regression testing also holds true with hotfixes unless the system is in a "total down state" and introducing untested code could not make it any worse.

Meekin stated that there was a phase of making rapid repairs that began after the July 24, 2017 release and lasted until he was able to impose more discipline on the process, before the release of Version 1.10 in October. Meekin's position is that the decisions to make emergency repairs flowed from balancing the hardship caused by not repairing the system immediately against the risk that the repairs would cause additional problems.

ANALYSIS

Pre-release testing:

Meekin failed to exercise reasonable care and diligence to ensure that MNLARS was properly tested before it was put into production on July 24, 2017. By failing to do so, he departed from the standards expected of a reasonable IT executive.

In 2015, Meekin found himself at the helm of a "new" effort to build one of the largest, if not the largest software applications that the State had ever attempted to build from the ground up. Meekin understood that the stakes were high. This was the second attempt to build MNLARS; the previous effort to outsource the development to HP had failed, resulting in delays and mounting costs.

There was substantial pressure to put MNLARS into production as soon as possible. Meekin had been advised, however, that his primary concern should be to bring forward a product that worked well. [redacted] wanted to ensure that MNLARS functioned properly when it was released, because "Nobody forgets a bad rollout." [redacted] told Meekin to postpone the release if necessary to achieve proper functioning. The concern over quality was especially poignant with MNLARS. DVS and MNIT understood that even if the application worked flawlessly, it might still be unwelcome to the deputy registrars who would be using it because it would create more work for them. Before MNLARS, the deputy registrars accepted transactional documents from customers and passed them along to DVS for processing. Upon the implementation of MNLARS, they would become responsible for data entry, and would have to resolve problems and errors in real time before they could complete transactions and earn payments for their services. A reasonable executive in Meekin's position would have understood that, given the environment, there would be a relatively low level of tolerance for defects or glitches with the new system. The low tolerance for error called for rigorous testing prior to MNLARS's rollout.
The standard of care in the software industry is to test software thoroughly before it is placed into production. The evidence is uncontroverted that the MNLARS software was flawed and was not adequately tested. Meekin agrees that the testing was inadequate but asserts that he did not know this until after the July 24, 2017 release.[17] The evidence, however, shows that Meekin had been provided with explicit notice of the risk that MNLARS would be released without proper testing. This notice should have prompted Meekin to closely scrutinize the status of the testing, but he did not do so.

In December 2015, SES issued an audit report stating that the project timetable carried a risk of running out of time for testing before MNLARS was released. Meekin admitted that he read the SES reports. He also admitted that he discounted that finding from the December 2015 report. Meekin explained it away by saying that such warnings about running out of time for testing were standard fare in audit reports because testing is the last step in the software development process, and it "always gets shorted." Meekin's response indicates that he understood, even without the report, that software developers often do not build sufficient time for testing into their schedule.

In 2016, SES issued quarterly reports that again identified a risk of running out of time for testing. The December report classified the risk as "HIGH." On March 29, 2017, SES issued a report stating that prospect of running out of time for testing was no longer a risk—it had become a "project issue," i.e., a current and existing reality. Despite this specific warning on March 29, manual regression testing ceased on or about May 16, 2017, approximately 10 weeks before MNLARS was released into production.

[17] Sogeti maintains that it had been raising concerns to Meekin for over a year about the inadequacy of the testing. Meekin asserts that Sogeti did not do so. Sogeti declined to be interviewed for this investigation. Without the opportunity for interviews, it is not possible to evaluate Sogeti's credibility or assign much weight to its assertions.

The SES reports should have prompted Meekin to exert oversight of MNLARS's testing. Meekin posits that as the CBTO, he was entitled to rely on indications from others that the software was ready to go. However, the State had engaged SES to provide audit services. Part of its job was to call into doubt assurances and assumptions about the health of the project. The warning SES issued on March 29, 2017 should have called into doubt any assurances Meekin had received in the past about the project timetable and having enough time for testing. SES's report that testing had become a "project issue" should have led Meekin to call those working on the project to account, and to lay bare the facts about what had been accomplished and would be accomplished in terms of testing. Meekin does not describe himself as doing any such thing. Instead of making a focused effort to get to the bottom of SES's concerns or the status of the testing, Meekin relied on general assurances from the technical and business teams that the software was ready and "good to go." His reliance on these general assessments was unreasonable in view of the specific notice provided to him and the high stakes that attended the software release.[18] Meekin did not exercise the diligence and reasonable care expected of an IT executive leading a highly visible and risky project.

Communication of risks:

Meekin provided his leadership with assurances that MNLARS would function well. He did so without diligently following up on the warning issued by SES in its March 29 report. This left [redacted] under that impression that full regression testing had been conducted, because they could not fathom releasing a new product without it. A responsible executive in Meekin's position would have apprised his leadership of the risks identified by SES, as well as his informed assessment of whether the risk had been adequately addressed. Meekin did not provide his leadership with this information.

Load testing:

It has been suggested that some of MNLARS's defects went undetected because it had not been subjected to adequate load testing. The evidence does not, however, establish that Meekin was aware that adequate load testing had not been conducted.

Load testing exposes a computer system to the stress of simulated use. The best practice for load testing is to test the system in an environment that mimics, as closely as possible, the one in which it will be deployed. Meekin states that he was aware that [redacted] had conducted load testing prior to MNLARS's release using Amazon Web Services. There is no reliable evidence indicating that Meekin knew or should have known that [redacted] load testing was inadequate.

[redacted] conveyed Sogeti's claim that it was concerned about the undersized testing environment for MNLARS and proposed using a "full-sized" one, but that Meekin and [redacted] rejected the idea because of its $300,000 price tag. Meekin tells a different story. He acknowledges that Sogeti spoke to him about creating a more robust test environment, but asserts

[18] Meekin states he was also aware that the list of program defects was decreasing and that he considered this to be an assurance that the software was ready for release. But to a reasonable software executive, the shrinking defect list would not have been viewed as a conclusive metric. As described by [redacted] and [redacted], decreasing defect counts may demonstrate that the testing is inadequate, rather than that the product is free of defects.

that the conversation happened *after* the July 24 MNLARS launch and pertained to future software releases. Meekin stated that he was still negotiating with Sogeti over the cost of this testing when he was placed on administrative leave. Because Sogeti would not be interviewed for this investigation, their reported position on load testing cannot be given more weight than Meekin's. The evidence does not show that Meekin acted unreasonably with respect to load testing.

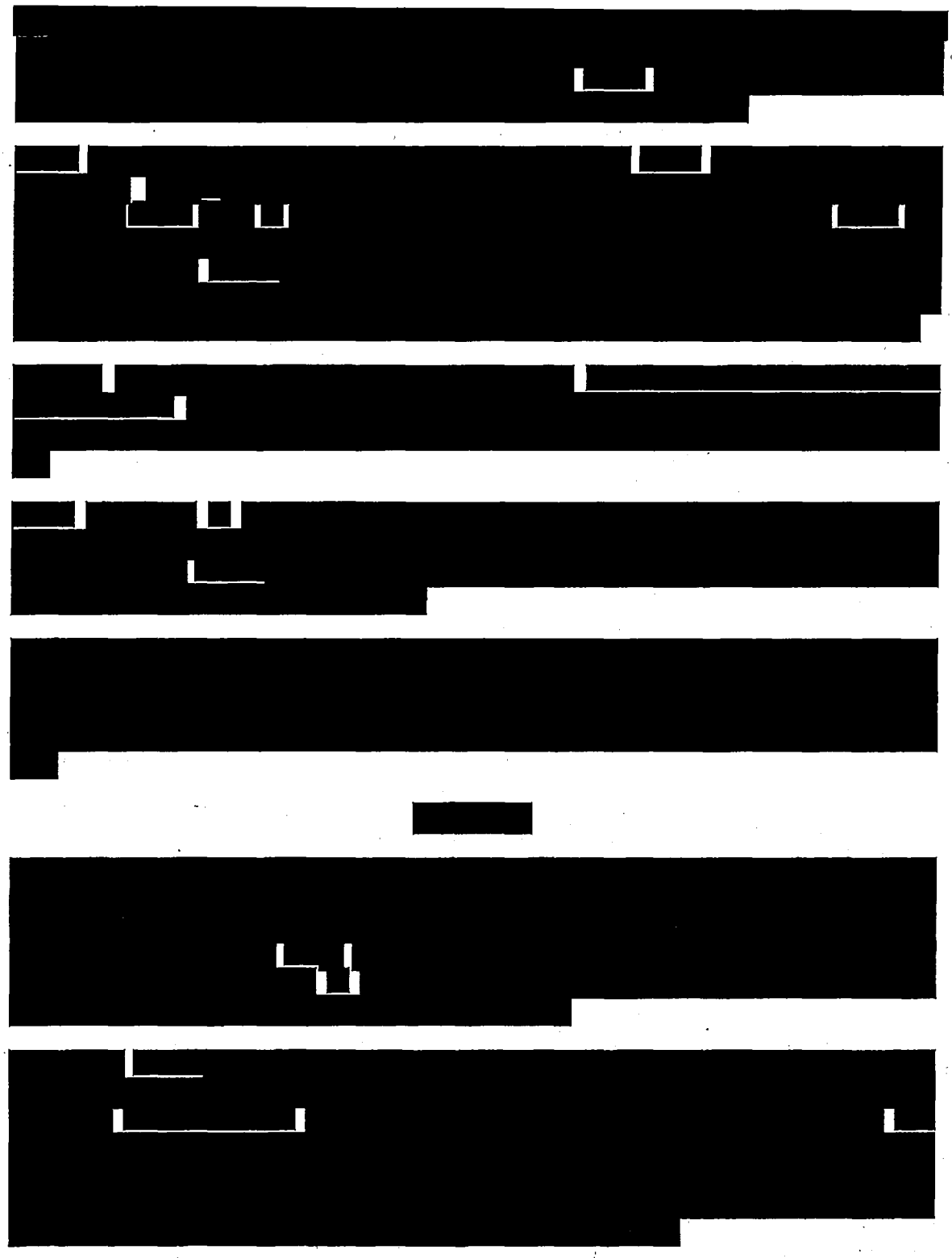
User acceptance testing:

The evidence shows that DVS did not have the resources (time and expertise) to properly conduct user acceptance testing on its own before the MNLARS launch. Meekin addressed this issue by modifying the Sogeti contract so the company could assist with managing and staffing the UAT process. [redacted] opines that doing so presented the only plausible path forward for accomplishing UAT on the project, and that the UAT on MNLARS was both adequate and responsibly conducted. The evidence shows that Meekin acted reasonably with regard to meeting the needs of the project as to user acceptance testing.

Testing of hotfixes:

There is insufficient evidence to evaluate whether Meekin acted unreasonably by releasing hotfixes that had not been fully tested. [redacted] are critical that Meekin and the MNLARS team sent out a series of hotfixes that had not been subjected to full regression testing. Meekin asserts that the decision to issue hotfixes without full testing flowed from a deliberative process of balancing the risks of doing nothing to repair the system against the risk that a repair without full testing would have unintended adverse effects. Without going day-by-day through the series of defects and problems then confronting MNLARS users and the development team, it is not possible to conclude that Meekin exercised unreasonable judgment by taking on the risk of issuing hotfixes.

[redacted]



[redacted]

Finding No. 4:	**Meekin failed to ensure there was an adequate complement of State-employed managers on the project.**

Meekin and [redacted] were the only managerial-level State employees overseeing the work of more than 50 or 60 contractors and employees on the MNLARS project. Meekin did not assure that there was an adequate complement of State employees who could carry out managerial duties related to the project. Meekin's failure to do so was not in keeping with the expectations resting on him as an IT executive.

EVIDENCE

[redacted] stated that many contractors were working without a manager above them. This presented an issue of accountability, since contractors share a community of interest in maximizing revenue; they are accountable only for the work assigned to them and not the outcome of the project.

[redacted] related that there was just one development team in operation on the technology side in early 2016. In order to increase the workforce, [redacted] became personally involved with hiring developers, scrum masters, and other individuals to work on the project. Over time, the staffing expanded and came to include four development teams, a data team, and a group of architects. [redacted] did not implement a director-manager-supervisor-worker structure typical to State government. In fact, there were no managers or supervisors between [redacted] and the 40 to 50 people doing the work. [redacted] "did a lot of the supervision of the larger teams." Although there were scrum masters on the various teams, only one of them was a State employee and the rest were contractors.

[redacted] stated that having [redacted] supervise so many individuals was "probably not the best." [redacted] questions whether the State had "too many eggs in the [redacted] basket." One person could not know all the technology involved and still have a broad enough vantage point to lead the project.

[redacted] related that Meekin and [redacted] were the only managers on the project to oversee the work of 65 contractors. This was like having 65 carpenters with only [redacted] foremen; there was inadequate leadership brought to bear on the work of producing the code. The lack of leadership resulted in programming errors. Sogeti told [redacted] that they had been raising concerns to

Meekin over several months that there were "real problems" with staffing that were causing quality issues.

[redacted] agreed that the organizational structure for MNLARS was "pretty flat." [redacted] initiated work on refilling the position by submitting paperwork to Meekin in December 2016 but Meekin did not act on it.

[redacted] drew an organizational chart for the technical team showing [redacted].[19] [redacted] was a contractor because there were no State employees with the requisite experience in using the Agile development framework. When asked if it was a concern to have contractors supervising other contractors, [redacted] said that was a Human Resources question that no one had ever raised to [redacted]. [redacted] does not believe that a lack of technical leadership caused problems for MNLARS. Rather, problems arose because [redacted] at DPS and MNIT were not adequately involved in the project to assure its success.

Meekin stated that he [redacted] had check-in meetings with [redacted] on MNLARS every [redacted] weeks at first, and later every [redacted] weeks. Those attending the meetings included Meekin, [redacted], the contractor who was serving as the [redacted] on the project.

Meekin stated he had "been on [redacted] for a long time to hire managers but [redacted] never did." Meekin had to take over leadership of MNLARS when [redacted] because there was not a manager on hand to do so. Had [redacted] hired managers, they could have helped out with the tasks of hiring and firing people and developing contracts with other vendors, which contractors cannot do. With managers on board, [redacted] would have been able to focus on some of [redacted] other duties, but instead [redacted] ended up spending 95% of [redacted] time on MNLARS.

Meekin reviewed the organizational chart that [redacted] had drawn. He identified no major errors and agreed there were about 70 FTEs in the "Release Train." He estimates that up to 12 of them were State employees. The [redacted] was a contractor and provided project oversight. There were also scrum masters and architects providing oversight. One of the scrum masters (there were between four and seven) was a State employee.

Meekin disagrees that it was problematic to have contractors supervising the work of other contractors. Those making this criticism do not understand the difference between line supervision and project supervision. Meekin saw MNLARS as using a "well-organized project environment. It's what's being done in the industry. [redacted] said [redacted] couldn't wait to do this in more places." The Agile/SAFe framework holds that this structure should result in programmers and developers receiving adequate technical guidance. [redacted] span of control was not too large because there were 12 or fewer State employees reporting to [redacted].

[19] The chart [redacted] drew is included below [redacted]

Meekin said that [redacted] was a State-employed manager on the technical side. [redacted] duties included decommissioning the legacy system. [redacted] was not in the Release Train, although [redacted] job had a connection to MNLARS. Meekin was aware that [redacted] and that [redacted] did not move to [redacted] for several months. Meekin disputes [redacted] account that Meekin caused delay in replacing [redacted] Meekin states it was not his job to complete the paperwork for hiring a replacement, and that [redacted] did not follow up with him on the issue.

ANALYSIS

The evidence shows that there were no State-employed supervisors or managers between Meekin, [redacted] and the approximately 60 to 70 people who were staffing the technical side of the project. Meekin recognized that the lack of managers was problematic but did not rectify it. His failure to do so was unreasonable and left the project exposed to risks.

Meekin's response to this concern is nuanced. On one hand, he acknowledged that he had been [redacted] to hire more managers, but to no avail. On the other hand, Meekin disagrees with criticisms suggesting that the MNLARS technical side should have followed the traditional director-manager-supervisor-worker structure used in staffing line functions within State government. Meekin asserts that MNLARS was staffed as an Agile development project, not an ongoing governmental function, and that following the Agile framework should have resulted in the provision of adequate technical oversight to all concerned. Meekin's view is that problems with the code came about not because of a lack of supervision, but because [redacted] overrode the guidance given by project architects.

Meekin's responses about not having enough managers—but not needing any more to provide technical guidance—are not necessarily inconsistent. It may be that it was reasonable to rely on the Agile framework itself to array people in ways that resulted in the provision of adequate guidance. Moreover, those monitoring Meekin's work were at least partially aware that this was being done. [redacted] was the Release Train [redacted] second-in-command on the project. [redacted] accompanied [redacted] to meetings with [redacted] and others to report on the project. It was either obvious or should have been obvious that a contractor, rather than a State-employed manager, had been placed in a high-level leadership position on the project. The conclusion follows, therefore, that the structure was at least implicitly approved by MNIT leadership.

However, [redacted] is accurate in pointing out that Meekin placed "too many eggs in the [redacted] basket." [redacted] observed that [redacted] was involved in hiring developers, scrum masters, and other contractors to work on the project. Meekin indicated that he had wanted [redacted] to put another manager in place to take care of these activities. On top of these duties, [redacted] observed that [redacted] ended up doing a "lot of the supervision" on the project because there were no other supervisors or managers. [redacted] related that the lack of other managers caused problems when [redacted] because the project lost the equivalent of three positions. Indeed, when [redacted] there were *no* State-employed managers left on the development side, leaving Meekin with no choice but to step in and take

over. This was particularly a problem, given Meekin's acknowledgement that he was already overextended with his other duties.

In sum, Meekin acted unreasonably by failing to ensure that there was at least some minimal complement of State-employed managers staffing the technical side of MNLARS.

Finding No. 5: Meekin failed to take timely and appropriate action to replace [redacted] after [redacted]

[redacted] had complete charge of the technology side of the MNLARS project and there were no State-employed managers who could take over [redacted] duties. [redacted] informed Meekin on April 24, 2017 that [redacted] The evidence shows that Meekin did not begin moving to replace [redacted] until months later. Meekin's failure to have a succession plan in place or to take timely and appropriate efforts to replace [redacted] was not in keeping with the expectations resting on Meekin as an IT executive.

EVIDENCE

[redacted] notified Meekin on [redacted] that [redacted] intended to [redacted] from State service at the end of May. [redacted] told Meekin at the time that [redacted] would be happy to help make sure there was a smooth transition to [redacted] but Meekin did not respond to [redacted] offer. Meekin instead asked [redacted] to extend [redacted] departure a couple of times, which [redacted] did. There was never any opportunity for [redacted] to make an orderly handoff of [redacted] duties to a successor. [redacted] last day of State employment [redacted]

[redacted] stated that [redacted] announced [redacted] to Meekin on the day they announced [redacted], but Meekin did not inform [redacted] of this for about another month. Meekin explained that [redacted] had felt [redacted] effectiveness would be diminished once [redacted] intent to [redacted] became known. [redacted] gave [redacted] in April and said [redacted] wanted to be gone [redacted] Meekin said [redacted] had to stay until [redacted] Meekin asked [redacted] to stay until [redacted] Meekin wanted [redacted] to offload some of [redacted] responsibilities but did not push too hard. In hindsight, this was problematic; when [redacted] left they lost the equivalent of three positions.

[redacted] related that Meekin knew for a long time that [redacted] planned to leave, but he did not fill [redacted] position. When [redacted] left, Meekin had to step in and take over [redacted] duties. Meekin's role was as CBTO, not as a "worker bee on MNLARS." Meekin became completely embedded in MNLARS after [redacted] departure. In [redacted] Meekin stated that he was working toward obtaining a replacement for [redacted]. [redacted], however, was still essentially running the project, and [redacted] is critical of Meekin for not having a succession plan in place to replace [redacted]. When [redacted] voiced [redacted] concerns to Meekin, he said he was working on separating out some of the duties of the position because [redacted] had been responsible for too many functions.

[redacted] stated [redacted] learned that [redacted] would be leaving the project a few months before [redacted] actually departed. As [redacted] departure became more imminent, [redacted] was concerned that Meekin

did not have a replacement for [redacted]. [redacted] asked Meekin whether HR was slowing down the process. Meekin replied that he was not encountering any obstacles, but rather that he "was the problem" in moving the process forward. Meekin did not, however, explain why he did not fill [redacted] vacant position.

Meekin stated that [redacted] turned in [redacted] at the time of the [redacted], which occurred on [redacted] Meekin talked [redacted] into staying through the launch of Version 1.2 [redacted] and talked to [redacted] again after that and convinced [redacted] to stay even longer. [redacted] Meekin found it necessary to take over day-to-day leadership of the project. [redacted] Meekin told [redacted] was no longer to make decisions on the project. This discussion coincided with Meekin's statement to the Commissioner's Office that he needed to be relieved of his responsibilities at the Department of Corrections. [redacted] official last day with the State was [redacted]

Meekin agreed that [redacted]. Meekin acknowledges that there was a gap between when [redacted] gave notice and when he started working to fill [redacted] position. His only explanation for the gap was that his efforts to hire a replacement "got delayed" and that hiring is difficult. Meekin had submitted a position description to Human Resources to replace [redacted] and was in the process of making an offer on November 9, 2017 when he was placed on administrative leave.

[redacted], emailed the investigator with a summary of the actions taken to replace [redacted] indicated that Meekin submitted a request to replace [redacted] on August 24, 2017.[20]

ANALYSIS

Meekin failed to take timely action to replace [redacted] after [redacted] announced [redacted] intent to [redacted] from State employment. Meekin's delay was unreasonable and did not reflect the diligence expected of a reasonable CBTO in the circumstances.

The evidence shows that [redacted] Rather than taking any steps to replace [redacted] Meekin asked [redacted] departure date a couple of times, [redacted] Meekin should have recognized that asking [redacted] to stay on the project was a stop-gap, not a substitute for replacing [redacted]. The evidence shows that Meekin did not initiate action to replace [redacted] until August 24, 2017, some [redacted] when he submitted a request to Human Resources to start the process of hiring [redacted] Meekin's only explanation for the gap is that his efforts to recruit and hire [redacted] became delayed, and that hiring people is difficult.

[20] [redacted] email is attached as an exhibit to this report.

As noted in Finding 4, Meekin had pushed [redacted] to hire managers under [redacted] but [redacted] did not do so. This added to the urgency of finding a [redacted] or for Meekin to assert himself and to assure that managers who could take over [redacted] duties were added to the team. Meekin's lack of diligence in situating managers under [redacted] or promptly implementing efforts to replace [redacted] resulted in Meekin having to step in to take over day-to-day management of MNLARS when [redacted] left. This situation was particularly undesirable since Meekin acknowledged that he was already overtaxed by his duties. Meekin's failure to act was unreasonable and reflected a lack of the diligence expected of one in his position.

Finding No. 6:	**Meekin failed to assure that the BCA was provided with acceptable customer service.**

BCA personnel felt that [redacted] was not attentive to their concern that their law enforcement customers be well-served by MNLARS. They raised this issue with Meekin, but he did not take steps or make any sustained effort to assure that BCA personnel felt their needs were understood or that their agency was being treated as a valued partner during the MNLARS project. Meekin's approach to dealing with the BCA was not in keeping with the expectations resting on him as a MNIT CBTO.

EVIDENCE

[redacted]. [redacted] stated that the BCA provides the conduit through which law enforcement users gain access to driver and vehicle records maintained by DVS. The BCA views the needs of its law enforcement customers as very important. BCA took the position that MNLARS needed to provide its law enforcement customers with the same level of information and services as the legacy system that was being replaced. However, those developing MNLARS appeared more focused on meeting the needs of deputy registrars and financial institutions, and the BCA had difficulty getting Meekin's attention on this issue.[21] The MNLARS team never really treated the BCA as a customer. The BCA got to sit in on the project meetings, but their communications "were always on the back burner."

[redacted] related that [redacted] felt that Meekin was particularly ineffective at managing [redacted]. [redacted] It [redacted] had full control over the project and that Meekin was deferential to [redacted] When [redacted] raised these issues to Meekin, he seemed to acknowledge [redacted] concerns but did not act on them.

[redacted] indicated that [redacted] did not want to allow the BCA to test MNLARS using "real data." This was "another roadblock" [redacted] created. [redacted] went to Meekin and eventually prevailed on

[21] [redacted]

him to override [redacted] decision, but the BCA "lost a lot of time" during a month-long battle over this issue.

[redacted] related that there were a lot of problems with the accuracy of data going out to law enforcement after MNLARS was released, but MNLARS did not even begin triaging these problems until September 2017. The BCA had to press hard just to get their problems into the queue for resolution. Meekin was stressed over MNLARS and told [redacted] he needed some slack (or "grace") from [redacted] to deal first with the more public-facing issues. Meekin was empathetic when [redacted] raised problems but was unable to solve them. [redacted] surmised that Meekin could have been "in over his head" or overwhelmed by the multitude of problems.

[redacted] It was clear that Meekin accepted [redacted] vision for and decisions about the project without question. Meekin did not seem to be open to hearing concerns about [redacted]. From [redacted] perspective, there were many good people on the MNLARS team who were not being heard.

BCA had a dispute [redacted] Meekin when it came time for the BCA to test the system's ability to relay data from MNLARS to the BCA's law enforcement and criminal justice customers. Over the decades, quirks and errors have been introduced into DVS data. These quirks and errors have arisen from historical events such as when data fields in the legacy system were repurposed. [redacted] wanted to test MNLARS by using "real data" from DVS, not sample data that had been loaded into the system for testing. [redacted] acknowledged that using real data might not be a best practice in the IT world. However, [redacted] felt that using real data to test MNLARS would more accurately predict how the system would operate once it was launched than would test data, which lacked the quirks and errors that MNLARS would encounter in real life.[22] [redacted] Meekin were "adamant" that the BCA use "test data" instead. [redacted] Meekin "were unwilling to change their approach in the face of reality." Toward the end of 2016, Meekin relented and allowed BCA to use real data for testing. Meekin's reluctance to allow the BCA to use real data ended up wasting a lot of time. The BCA had had two people each spending two weeks doing testing with simulated data by the time Meekin made his decision. [redacted] views Meekin as being "pretty hands off" in terms of delivering customer satisfaction to the BCA.

[redacted] felt from the outset that the priority customers for MNLARS were the deputy registrars and financial institutions; despite the critical nature of the BCA's mission to provide data to law enforcement,

[22] [redacted] provided the following additional background: Around 2011 or 2012, the BCA created a new system for law enforcement customers to access driver and vehicle data. In the course of doing so, BCA discovered "all kinds of data oddities," due in part to people repurposing data fields over time. BCA developed an appreciation for the "craziness" inherent in the data in the DVS systems. BCA believed it imperative to test MNLARS using production data so these problems could be identified and addressed before the system went live.

the agency was given low priority. BCA representatives had to "push themselves into the project from day one" to make sure their voices would be heard.

[redacted] stated that BCA personnel did not feel their concerns were heard or given the weight they deserved during MNLARS's development and release. Right before and immediately following the release, the BCA was not even allowed to raise issues or concerns that they believed warranted attention. For the first three months after release, the BCA participated in Monday morning project meetings, and "nine out of ten times they were not allowed to talk." The BCA's issues with MNLARS are only now being addressed, six months following the release.

[redacted] mentioned that the BCA was not allowed to test the MNLARS system using "real" data for a long time, but had to use simulated data instead. Simulated data is designed to work properly with the system, but the "real" data within the State's historical records includes anomalies, such as names with numbers in them and addresses that have no zip codes.

Meekin stated that he [redacted] had a "very big" business disagreement with the BCA over the use of production data (i.e., "real data") for testing. Meekin attended meetings with [redacted] and the BCA in an attempt to find a resolution. In the end, they provided the BCA with production data for testing.

Meekin was aware that [redacted] with BCA personnel. [redacted] However, [redacted] Meekin feels this is typical of how the BCA responds—they adamantly demand things, and when they do not get their way, they complain that they are not being heard. Meekin declined to become involved in some of these disagreements because they involved discrete details; he responded by saying, "You guys gotta go figure that out."

Meekin stated that during the first week or so after MNLARS went live, the BCA complained about data errors that resulted from a "small piece of code that needed to be changed." There were 20 people participating in these phone conversations after the release. Meekin spoke to the complaining individual, [redacted] in a separate conversation. Meekin explained that they had much more pressing issues to deal with from the system perspective and asked if he could come back to that problem. This deescalated the situation and seemed to resolve it.

ANALYSIS

Meekin represents MNIT in interactions with its customers, such as the DPS and the BCA. His position description makes him responsible for understanding customer business needs and maintaining customer satisfaction. Meekin was aware of both the potential for and the reality of BCA's dissatisfaction over MNLARS. He was obligated to try to address that dissatisfaction effectively, but he did not do so.

The strategy developed by the MNLARS team for achieving a timely launch created tension with the BCA. The BCA felt it was critical for MNLARS to provide the full suite of services that the

legacy system had provided to law enforcement customers. MNLARS developers chose, however, to release a minimally viable product that would handle the bulk of common transactions, and to add additional functionality in later releases. Meekin knew the BCA was a demanding customer, that it was adamant about its business needs, and that it was apt to complain when these needs were not met. Given these dynamics, a reasonable executive in Meekin's position would have realized that proactively managing the BCA's expectations and its likely disappointment with the minimally viable product was an important aspect of maintaining the customer relationship.

Meekin failed in this responsibility, especially as it pertained to addressing problems that arose between [redacted] There is a consensus among the witnesses that there was not a good relationship between [redacted] stated that BCA personnel had to push their way into the project so that their voices would be heard "from day one." They were rarely given a chance to speak at meetings, and even when they were, they felt that their concerns were not heard or given the weight that they deserved.

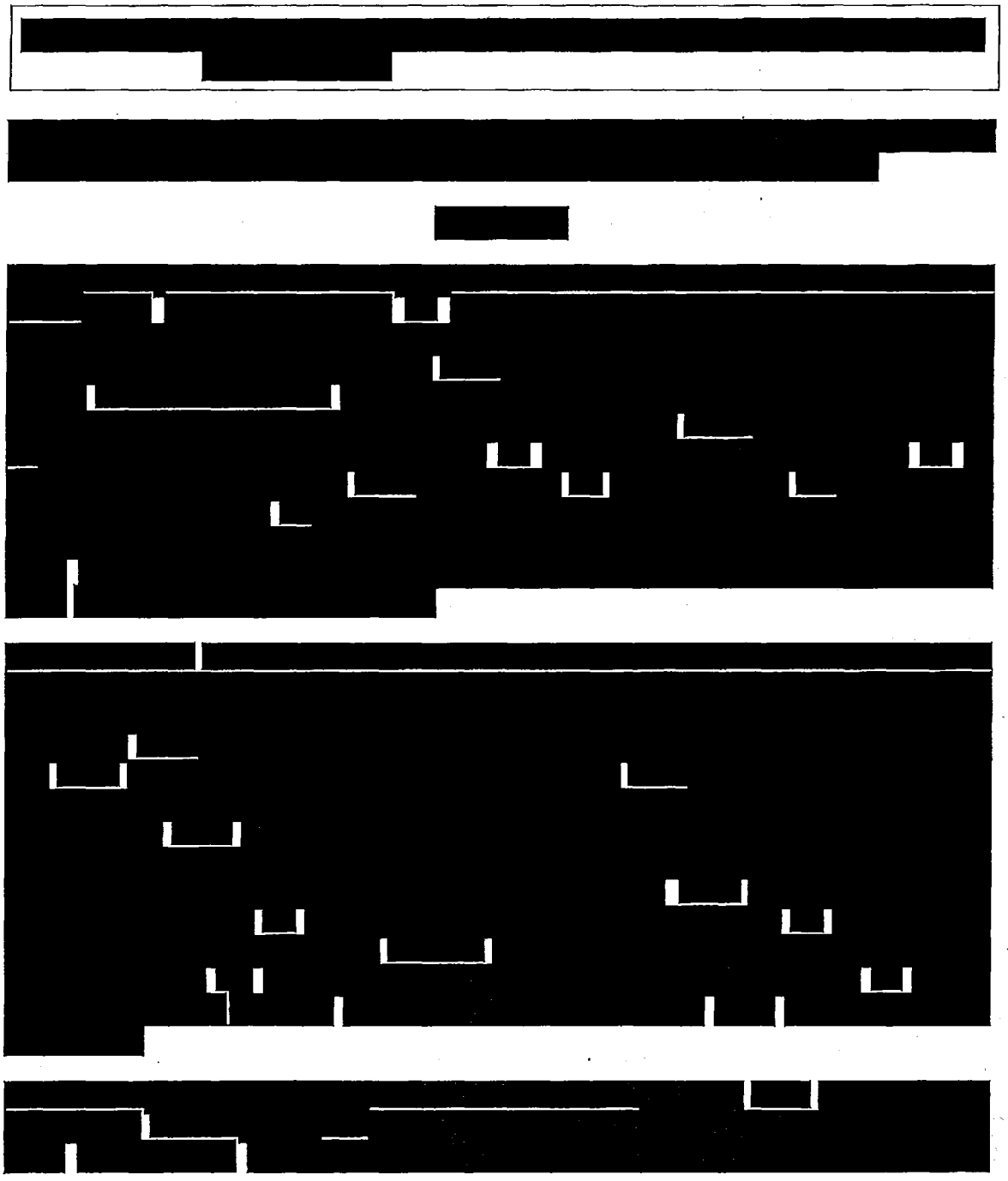
Meekin stated that [redacted] kept a professional demeanor during meetings with the BCA, but the evidence demonstrates that he knew about the tension in [redacted] relationship with the agency. According to Meekin, [redacted] spoke to Meekin about the BCA's concerns about how [redacted] was handling the project. The evidence demonstrates, however, that Meekin did little, if anything, to allay the BCA's concerns and make them feel as though they were being heard. [redacted] stated that although Meekin seemed to acknowledge [redacted] concerns, he did not act on them. According to [redacted] Meekin was not even open to hearing [redacted] concerns about [redacted]. Meekin, for his part, stated that his response to at least some of the problems brought to his attention was to tell those who were disagreeing with one another to figure it out themselves.

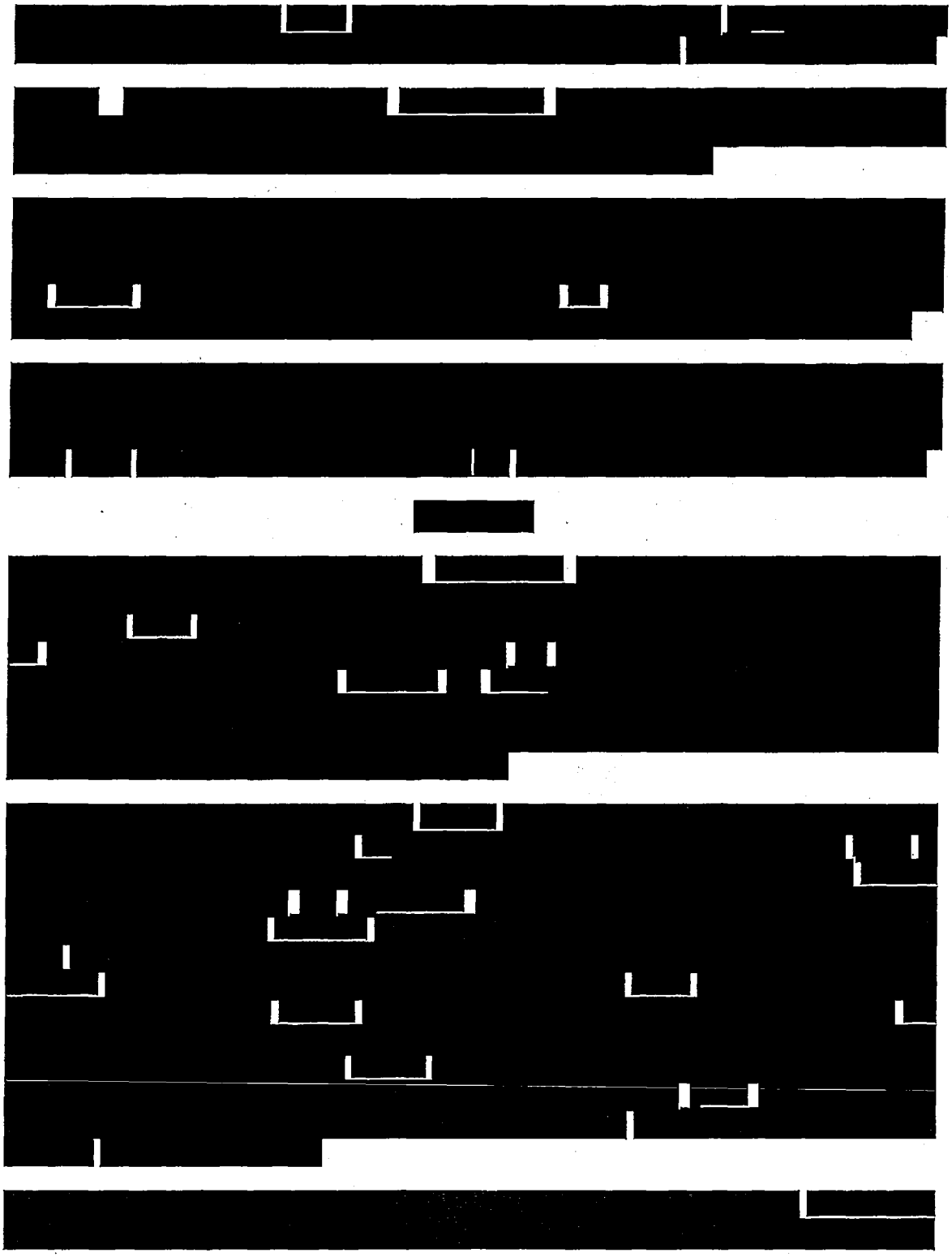
The issue confronting Meekin in all this was not whether the BCA's needs could reasonably be met at the time they were raised; Meekin and the broader MNLARS team were compelled to make business decisions about what features to include in the minimally viable product, and—after the release—which problems with MNLARS deserved priority treatment.[23] Rather, the issue facing Meekin was the tense relationship between [redacted] and a customer that viewed its needs as important and critical to public safety. Meekin's response to these issues was susceptible of being perceived as—and in fact was perceived as—indifference to customer needs and concerns.[24]

[23] Meekin described having followed up on one of the concerns the BCA raised after MNLARS's launch. This was, however, only one of the concerns that the BCA raised over the course of the project.

[24] [redacted] spoke at length about the BCA's desire to test MNLARS using "real data" instead of "test data." This, however, appears to represent a clashing of sincerely held views as to the best way to go about testing the conduit that the BCA was preparing for use. The BCA asked to have access to "real" data for the purpose of testing the system. [redacted] acknowledges that using real data is not a best practice in the IT world but asserts that this measure was warranted given the idiosyncratic nature of the records maintained by DVS. There is no suggestion that Meekin, [redacted] or others involved in MNLARS prolonged their deliberations over this request any longer than necessary to reach a responsible resolution.

In sum, Meekin knew that MNLARS was a minimally viable product that would not meet the needs of all customers, and that the BCA was a demanding customer that would likely be dissatisfied if its needs were not met. A reasonable executive in Meekin's position would have acted proactively and effectively to manage the BCA's expectations and likely disappointment with the minimally viable product. Meekin did not do so and did not respond effectively even when presented with concerns over [redacted] handling of issues.





[redacted]

SUMMARIES OF INTERVIEWS

[redacted]

November 21, 2017

Background

[redacted]

Meekin's role

Meekin is a Chief Business Technology Officer ("CBTO"). Meekin's clients have been the Department of Corrections ("DOC"), and the Department of Public Safety ("DPS"). Within DPS are the State Patrol, BCA, and the Driver and Vehicle Services Division ("DVS"). BCA was a "little bit different" than the other two divisions at DPS because its networks deal with criminal justice information.

Department of Public Safety

[redacted] DPS still is responsible for some of the legacy hardware and the people who have supported it, and this falls under Meekin's charge.

MNLARS

MNLARS has a somewhat "storied" history. The State has been providing the services encompassed by the MNLARS project for decades. About 10 years ago, the State decided to "rewrite" the programs that provide driver licensing and vehicle registration services. About eight years ago, the State engaged a vendor to do this work but the project never really got off the ground. About five years ago, the State engaged a second vendor that did a substantial amount of work on the project, but the vendor's services were discontinued.

Thereafter, the State took over the project. The State neither purchased an off-the-shelf application nor completely outsourced the project to a vendor that could develop it. Rather, the State moved forward with developing the MNLARS application by hiring and contracting with people with expertise in the area. [redacted] believes that Meekin has been at DPS since the State took over the project.

Executive Team discussions of MNLARS

[redacted] The Executive Team meets every Thursday. MNLARS has been a topic of discussion at the meetings. Before it launched in July, all indications at the meetings were that the project was "looking good."

All of the CBTOs have independent authority over the agencies they work with. The Executive Team meetings provide them with an opportunity to ask others from MNIT for any help they need. [redacted] cannot remember Meekin ever doing that with regard to MNLARS. However, it is relatively uncommon for CBTOs to reach out to their peers for assistance. Prior to the MNLARS launch, no one provided any information at the Executive Team meetings that caused [redacted] to realize there were problems or issues warranting further inquiry.

[redacted] oversight of project:

[redacted] monitored the MNLARS project by asking for periodic updates from Meekin as the launch date came into view. [redacted] makes all the teams managing major projects give him updates. [redacted] sat in on the meetings with [redacted] Meekin.

Concerns after MNLARS launched:

When MNLARS first launched, deputy registrars began expressing concerns that the application did not have all the features they expected. Grumblings of that type are often indicative of a disconnect between expectations and reality. With software development, it is sometimes necessary to trim down the list of features in order to bring a project in on time and on budget. Later, however, there were breakdowns with the program. This was no longer just a concern about a lack of features; the computers in front of the deputy registrars stopped working. This represented a failed launch of the application.

Performance issues:

Some concerns about Meekin's performance have come to light recently with the launch of MNLARS. [redacted] was told that there were hardware problems that were keeping MNLARS from functioning as expected. [redacted] does not know the actual source of this information; [redacted] knows only that it originated from the group under Meekin. [redacted] offered to help in any way possible to address the issues, and [redacted] was told to provide the MNLARS application with more computing capacity. Adding capacity helped mitigate some of the performance issues, but did not fix the underlying problems.

[redacted] went to [redacted], who worked under Meekin on the MNLARS project. [redacted] advised that there was not a capacity problem; MNLARS was not using the resources already available to it.

Mainframe hosting issue:

The expectation was that the launch of MNLARS in July would allow moving the application off of a mainframe computer and onto servers. However, somewhere along the way, some aspect of MNLARS functionality was left on a mainframe. Because of this, for some period of time DPS will probably incur more expense than the State originally anticipated.

[redacted]

Background

[redacted]

MNLARS rollout

[redacted] understanding was that when MNLARS went live, it would be a Minimally Viable Product ("MVP"). The plan was that, in the weeks and months following the rollout, the MNLARS team would keep adding additional features and functionality. But as of the date of the interview, not a single new feature has been released. Instead, all efforts have been focused on delivering the functionality that was supposed to be in place when the product was rolled out.

[redacted]

MNLARS launched in July 2017. During the first or second week of August, Meekin convened a meeting that [redacted] now refers to as the [redacted]

As background, [redacted] to sit down with Meekin and do a "deep dive" into the MNLARS project. About a week after [redacted] and Meekin spoke, Meekin set up a meeting with [redacted]. Meekin had filled [redacted] prior to the meeting. Meekin began the meeting by saying he needed to tell everyone where the project was at, without interruption.

The gist of Meekin's remarks was that there were serious issues with the project, and Meekin did not believe that they could complete work on "Real ID" done in a timely manner.[25] Meekin suggested that they look at vendors in the market who could develop the driver's licensing system for MNLARS. This was the first time anyone at the meeting had heard there might be anything seriously wrong with the MNLARS project. Someone asked Meekin if he had been keeping DPS informed. He replied that they had, but that they also needed to bring this information to DPS's [redacted] "at the right time" so DPS would not lose confidence in the project.

[25] The United States Congress passed the "Real ID" act in 2005 in response to the 9/11 Commission's recommendations that the federal government establish standards for the issuance of identification cards. https://www.dhs.gov/real-id-public-faqs. Minnesota has received an extension to October 2018 to have "Real ID" in place. https://www.dhs.gov/real-id/minnesota.

Meekin disclosed several problems with MNLARS. They had built it using Agile development methodology, which was relatively new to the State of Minnesota.[26] The Agile framework involves breaking the development team into smaller teams, with each team developing small units of software at a time to add increments of functionality. During the whiteboard meeting, Meekin disclosed that the component parts had been tested only on an individual basis, never as part of the larger system. The components did not function together when incorporated into the larger system.

Meekin's assessment of the project was surprising, since the Office of the Legislative Auditor ("OLA") had been monitoring the project over the past three years and had given it a "clean bill of health." Now, they feared they were possibly looking at a $75 million expenditure to "fix' the system.

Initially, the plan for MNLARS was that everything would be contained in one system that would all be rolled out at the same time. But in July 2017, only the motor vehicle part of the project was launched, not the driver's license functions. At the whiteboard meeting, Meekin said they could not get to the work on Real ID because they were focused on fixing the motor vehicle functions, so they would need to identify an alternative solution. Meekin listed seven different alternatives [redacted] among the alternatives were hiring more consultants, to engaging a vendor to develop the driver licensing system, to completely redoing the entire project. The project had a large number of consultants on board, and a number of Meekin's recommendations involved rejiggering the consultants.

Meekin had been the CBTO for both DPS and the Department of Corrections. At [redacted] Meekin said he could not continue with his duties at DOC while doing what needed to be done to remedy MNLARS. [redacted] to take on the expense of having a fulltime CBTO and Corrections agreed to this.

[redacted] study of the situation

After [redacted] with Meekin, dealing with the problems with MNLARS became [redacted] learned that DPS was going to do an interview with the Star Tribune, and [redacted] tried to connect with them first to alert them to problems with MNLARS.

The week after the [redacted], MNIT leadership started having conversations with DPS leadership. A major concern was Meekin's doubt about the ability to deliver Real ID. [redacted] (and possibly others) met with [redacted] and let [redacted] know there were some "really serious issues with the system." This information seemed to surprise [redacted]; [redacted] said [redacted] had been informed that everything was fine or was going to be fine. To [redacted], this indicated that Meekin had possibly failed to keep DPS informed about the status of the project.

[26] "Waterfall" is the more traditional approach to software development, which involves working in a fixed sequence through planning, designing, building and testing, which each step completed before moving to the next. "Agile" is a more flexible approach, which can include going through the development lifecycle for one part of the product after another. *See* 10 Differences Between Agile and Waterfall Methodology, https://blog.flatworldsolutions.com/10-differences-agile-waterfall-methodology/

[redacted] sensed during the meeting that DPS had a lot of angst over the situation and possibly felt that MNIT had done a "switcheroo" on them. DPS assumed that after spending 8 years and $93 million on the project, MNIT had a plan for being successful. [redacted] sensed that DPS felt betrayed and frustrated when MNIT disclosed that they might not be able to deliver on the project.

Mainframe versus server-based

Meekin had informed MNIT's leadership team that the MNLARS project would be server-based and not on a mainframe computer. But in conversations with [redacted], [redacted] learned that the system had been developed on the mainframe.[27] Mainframe computing is built around paper-based processes, rather than on digital processes. MNIT decided early on to get away from mainframe computing because it would not support the number of digits required for Real ID drivers' licenses, and because it is very expensive to keep operating the system. [redacted] was under the impression that drivers' licenses would be off the mainframe as of July 1, 2017.[28]

Issues with the MNLARS system:

In [redacted] left the project. Meekin was thereafter the key software developer on the project. He needed developers. He also needed database analysts. He gave MNIT leadership a list of 10 skillsets he thought he might need to address the problems with MNLARS. [redacted] "all-call" to all CBTOs to ask for people who had those skills. An all-call is an all-hands-on-deck request to find the people needed. MNIT needed to collect its best and brightest minds to fix the problems.

One of the CBTOs recommended bringing Microsoft on board to look at the architecture of the system. MNIT did so and "found out from Microsoft that there [were] very serious issues" with the programming in the system. Microsoft was able to put some "shims" in place to make the system function better.

[redacted] found some problems with the MNLARS architecture. In computer parlance, the different layers of technology that make up an application are referred to as the "stack," which is comprised of a front end (the user interface that people see and where they do their work), the back end (a database), and a "middle" that connects the two. Architecturally, MNLARS developers put everything in the middle tier, and all the connections were "competing" with each other. MNLARS was set up so that someone conducting a query would trigger a search through millions of records. If you were a user doing a search for a vehicle title, the system would pull up all the records and then find the one you were looking for, slowing the system down. The system had slowdowns that were so severe that users were unable to use it. This is when [redacted] issued the "all call" for assistance.

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[27] This may reflect a misunderstanding or miscommunication. [redacted] indicated that as of the date of [redacted] interview, there were six components of driver services left on the mainframe system, and it was [redacted] understanding that driver services, when completed, will be completely off the legacy system.

[28] This may reflect a misunderstanding or miscommunication. So far, the drivers licensing system has not been *built* on the mainframe, but has been *left on* the mainframe while development went forward with the vehicle registration functions.

[redacted] had been asking Meekin for weeks if it was possible to speed up the system by adding more computing power to it. Meekin replied in the negative, but they found out later that more computing power would improve performance.

When the developers tested the system, they tested it in the functional silos in which the software had been developed. The system went live before it had been tested "end to end" in its totality.

Meekin would have known about these issues after he spoke with Microsoft. He may not have known about the issues before that, but he should have; the people on his teams should have spotted these problems.

Meekin's explanation

Meekin "sort of" blamed [redacted] for the system architecture. [redacted] submitted [redacted] in [redacted], but Meekin [redacted]. Meekin did not replace [redacted] when [redacted] announced [redacted] and, in fact, MNIT only recently replaced [redacted].

Structural issues with managing the development team

There are about 60 people working as consultants on the MNLARS project. When [redacted] asked Meekin for an organizational chart, he showed [redacted] a representation of what the scrum teams looked like. But when [redacted] examined the actual organizational chart, the structure was very flat—after [redacted], almost everyone on the project reported directly to Meekin. There were no managers. [redacted] identifies this as a significant flaw because the organizational structure speaks to how the project will go. There should be a segregation of duties between developing and implementation (i.e., those who would represent the business in testing and accepting the product as serviceable). In this case, with everybody reporting to Meekin, there was no separation between the disciplines.

In addition, many consultants were working without a manager above them. Adding to the complexity, there were consultants from different companies, [redacted]

In some cases, consultants were reporting to other consultants, without a State employee overseeing their work. This presents an issue with accountability, since consultants share a community of interest in maximizing revenue. Consultants do not own the outcome of a project; their interest is only the work they have been assigned.

[redacted] was upset about [redacted] position being left vacant after [redacted]. [redacted] position was a key role that was left unfilled for a long time. Other roles that were filled by consultants should have been filled by permanent staff. Several key architect positions were also left unfilled.

Responsibility for failures

When asked who is responsible for the failures prior to the MNLARS release, [redacted] indicated that MNIT and DPS failed to bring the deputy registrars to the table and engage them in the project. Ultimately, however, Meekin owns the technology failures because they occurred under his leadership. All of the CBTOs are responsible for the projects they deliver for agency partners. Meekin had not overseen staffing appropriately. The project was staffed wholly by consultants; there were no State employees on the project. There was also a big disconnect between the expectations for the product and what was ultimately delivered. Had MNIT and DPS leadership known about the issues MNLARS faced, it would have chosen a different strategy.

Meekin was the CBTO for both DPS and DOC. At the [redacted], he said he could not meet his obligations at DOC while completing the MNLARS project. [redacted] DOC and ask them to take on the expense of their own CBTO. MNIT does not have independent funding; rather it relies on revenues it receives from charging for its services. [redacted] learned that Meekin had not been doing much work for DOC, because he was spending all his time working for DPS.

[redacted]

Background

[redacted] DVS is responsible for both drivers licensing work (e.g.: administering examinations, issuing licenses, and conducting reinstatement processes) and motor vehicle transactions (e.g.: selling license tabs, registration activities, and title transfers). DPS collects about $1 billion each year in revenues, largely from motor vehicle transactions.

[redacted]

Role of deputy registrars

DVS does not interface directly with customers who need vehicle services. Rather, deputy registrars serve as an intermediary between DVS and the public. Deputy registrars can be either units of local government, such as cities or counties, or private corporations. Deputy registrars do all the "front-facing work" with DVS customers and use MNLARS extensively.

History of MNLARS project

The State of Minnesota was in a situation that other states have found themselves in—it used old "legacy" technology to support drivers licensing and motor vehicle registration functions. Minnesota's system was on a mainframe computer that was very dated, and was at risk for security breaches. An independent assessment was conducted in 2007 and found that the system was dated, and that programmers who could work with it were retiring or moving on. Pursuant to legislative authority, DVS began collecting a "technology fee" on transactions in 2008 in order to generate enough revenue to replace the old system.

In around 2010 or 2011, the MNLARS project was moving forward, and the State made a decision that it could not build the system in-house, but would instead need to engage a vendor to do it. The Legislature provided funding and extended the technology fee for four more years to enable the use of an outside vendor. The State started a procurement process in 2010 to bring in an outside vendor. It selected HP and worked with the company from 2012 to 2014. HP brought in dated software and became very rigid when the State asked for changes. In addition, the State wanted an Agile development process but HP brought in a Waterfall approach. At around the time [redacted] to MNLARS in 2014, it was decided that the State could not continue working with HP, and the State discontinued the agreement.

Meekin [redacted] of the project after HP was out of the picture. It was decided that the State would build MNLARS itself rather than outsourcing the work to a vendor. Meekin [redacted] started bringing IT staff on board through procurement processes. [redacted] was hired in 2014 or 2015 as the [redacted]. [redacted] Once [redacted], Meekin stepped back from the project to focus on his other duties. [redacted] informed as to the status of the project. The first priority for MNLARS was to work on motor vehicle services, the plan being to defer work on driver services until later.

Mainframe versus server:

When the MNLARS team selected the launch date, they moved all of the motor vehicle functions from the mainframe computer into MNLARS. The drivers' license systems still reside on the mainframe. There was never any glimmer of hope that the drivers' license systems would be moved off the mainframe by July 2017; the team always knew that was going to take additional time. Looking forward, the next phase of the project will be to move driver services off the mainframe.

Problems with MNLARS during and following the launch

As MNLARS continued moving forward, [redacted] stayed in constant communications with those managing the project to identify a potential launch date. They anticipated a phased approach to the rollout. They planned to start with high-priority transactions that needed to be available within MNLARS at the time it was released, and then to follow up with lower priority functions that could be added to the system as time went on. The highest priority transactions were those that the deputy registrars conducted most frequently.

MNLARS launched in July 2017, following a 10-week "adoption environment" for the deputy registrars.[29] Very few deputy registrar staff actually went in and used the adoption environment to become familiar with the new system. Thus, there was an understanding at the time the system went live that the deputy registrars were not prepared for it. MNLARS was significantly different from the system that deputy registrars had used in the past. For instance, the deputies had to enter their own inventory of things like license plates and renewal tabs into the system. A lot of them entered the information incorrectly, sometimes claiming inventory that had been assigned to other offices, and problems snowballed from there. [redacted] felt the deputies did not bother to train on the new system. The deputies took offense to that observation, and blamed the MNLARS system for the problems.

There were other problems with MNLARS following the launch. For example, transaction fees would double in the virtual checkout cart. The MNLARS team tried to do "hotfixes" overnight, without a lot of testing. For the first three to four weeks following the release, they were doing hotfixes almost every night. The MNLARS team then switched over to a weekly release of updated software instead of a daily one.

The deputy registrars were accustomed to a system that handled all their transactions, even the "one-offs." When MNLARS launched, it did most, but not all, transactions, and it turned out that the features that were missing created problems. By the end of the first month following the launch, DVS found it necessary to rely on statutory language that allowed them to offer 60-day vehicle permits in circumstances where they were unable to issue a license plate sooner, due to problems with the system.

Around mid-to-late August, they noticed there were some major gaps in the system's functionality. For instance, the system would not transfer a specialty license plate from one vehicle to another. Some functions they had planned to be available at the time of July 24 rollout were not there. [redacted] does not know how these missing features eluded detection during the testing phase.

The system also had issues with slowdowns. Communicating with the deputy registrars became a challenge because they had different expectations. Some who experienced the slowdowns felt the system was "down." Others who were accustomed to computers and the internet operating more slowly did not necessarily react the same way.

The MNLARS team released a large upgrade toward the end of October that resulted in myriad problems; there were things that just did not work well when the system came up for business on October 27, 2017. The system provided terrible performance on October 30 and 31st. Two days

[29] According to the OLA Report issued in June 2017, "On April 24, 2017, DVS began providing training to deputy registrars on how to process vehicle transactions in MNLARS. The first phase of training will last two weeks, followed by an 'adoption phase' that will last at least ten weeks. During the adoption phase, deputy registrar staff will continue to use the legacy systems to perform work, but they will have access to the MNLARS system in a training environment, so they can practice performing transactions. A DVS official told us there is no fixed date, but the department hopes to roll out the vehicle services portion of MNLARS by the end of July 2017." OLA Report at 6-7.

later, a database administrator made a critically bad mistake that brought the system to its knees, and they are still working to make repairs.

Deputy registrars' concerns

While there have been problems with the MNLARS system, there are likely other issues that contribute to the angst expressed by deputy registrars. The introduction of MNLARS marked a significant and perhaps unwelcome change in how deputy registrars conduct business. Formerly, the deputies functioned somewhat as a "pass-through" in a paper-based system. For instance, when there was a problem with a vehicle title or registration, the deputies passed the paper bearing this problem to DVS, which would then be responsible for remedying it. DVS made a conscious decision to change this when MNLARS was implemented. Now, deputies cannot finish a transaction in MNLARS unless everything is in order. This shifts responsibility to the deputies to fix problems on the front end.

Meekin's performance

Meekin has been a "huge advocate" for DVS. [redacted] cannot say anything bad about Meekin's performance and would not do so. [redacted] believes they could not have made as much progress on MNLARS as they have without Meekin's leadership.

[redacted] has enjoyed a good, respectful working relationship with Meekin for a span approaching [redacted]. [redacted] speculates that they might have had better outcomes with the project if [redacted] Meekin had stayed closer to the project, as many decisions were being made beneath [redacted] at the team level. But both [redacted] and Meekin had additional demands and responsibilities to address. Meekin was stretched "pretty thin" between his responsibilities at DOC and DPS; they used to [redacted] When things started looking like they were falling apart on MNLARS, Meekin went to MNIT's leadership and said he could not be responsible for both DOC and DPS. Meekin thereafter was assigned full-time to DPS.

Despite the difficulties encountered over the past year, nothing has shaken [redacted] confidence in Meekin. To the contrary, seeing his diligence in trying to correct the problems has increased [redacted] confidence in him.

[redacted] was in charge of developing the MNLARS software and was empowered as the decision maker on all technical aspects of the project. The day they announced the MNLARS launch, [redacted] told Meekin [redacted], but Meekin did not inform [redacted] of this for about another month. Meekin explained that [redacted] had felt [redacted] effectiveness would be diminished once [redacted]. [redacted] gave [redacted] and said [redacted] wanted to be gone by [redacted]. Meekin told [redacted] had to [redacted]. In August, Meekin asked [redacted] to stay until [redacted].

Problems with [redacted] performance

[redacted] Meekin have discussed problems with MNLARS from the perspective of hindsight, and have agreed that [redacted] were not aware of some things that had occurred. In or around September, Meekin [redacted] learned that MNLARS had not been ready to go at the time of

launch. Meekin realized this by "digging into" the problems and speaking with staff. When [redacted] came back from [redacted], Meekin told [redacted] he did not want [redacted] involved in any decisions. [redacted] would not admit that the system was in trouble. [redacted] kept saying the system was good. [redacted] "officially" left State [redacted].

There were some early warning signs of problems with [redacted] performance. Meekin [redacted] discussed some as they came across them. [redacted] catalogued the issues that are now apparent in hindsight:

- [redacted] moved [redacted] "downstairs" where the software development teams were working on the project. [redacted] was employed at an administrator level and should not have been "down in the weeds" of the project, but should have been managing at a higher level.
- [redacted] left a supervisor position vacant.
- Meekin did not push too hard on getting [redacted] to offload responsibilities. In hindsight, this was problematic: when [redacted] they lost the equivalent of three positions.
- [redacted] was aware of what was going on with the project on a day-to-day basis. [redacted] knew where the gaps and holes were. [redacted] "fed" information to Meekin [redacted] about the project, but kept information about problems to [redacted].
- [redacted] kept coming up with excuses on why [redacted] would not fill positions.

When the problems with MNLARS became apparent, Meekin was as surprised as [redacted] to find out about them.

[redacted] **role**

[redacted]

Background

[redacted]

[redacted]

[redacted]

Sources of information about MNLARS over the last year

[redacted] identified the sources from which [redacted] garnered information about MNLARS over the last year:

- [redacted] informed [redacted] about business developments, project developments, and they would also discuss whether DVS needed to hire additional people.
- [redacted] DPS hired [redacted] specifically to ensure that DVS was ready and prepared for the changes that MNLARS was going to bring.
- *Paul Meekin.* [redacted] met with Meekin about [redacted] and he provided updates with respect to the technical aspects of MNLARS.
- *Demonstrations.* When [redacted] schedule allowed, [redacted] attended demonstrations that were held by the development team at the end of every two-week sprint.
- *Quarterly meetings.* [redacted] attended quarterly meetings with Meekin, [redacted] hese meetings covered project activities during the quarter. [redacted] presented most of the information at the meetings.
- *Audits.* An independent firm audited the health of the project (not the software), and [redacted] reviewed their reports. [redacted] did not recall whether the audits were conducted annually or quarterly.

[redacted] knowledge before the July 24, 2017 MNLARS rollout

[redacted] understood that the intent for the July 24, 2017 rollout was to provide a "minimally viable product" for motor vehicle services. It was not expected to include any functionality for driver services. The term "minimally viable" pertained to the number of functions, not to quality or operability. High-volume activities were to be included, such as vehicle tabs, titles, and registrations; these were the majority, or "bread and butter" of deputy registrar activities.

[redacted] was under the impression that the functions to be put into production on July 24 would work well. [redacted] did not have a list of the functions that would be delivered (or not delivered) on that date, which was a frustration. [redacted] understood that the plan was to add more functions, i.e., those pertaining to lower frequency transactions, later. DPS also had a plan in place for accomplishing the business functions that were not included in the rollout until they could be were finalized and released, and that plan was included in the training that DPS offered to deputy registrars.

Project deadlines and delays

Minnesota has a statutory requirement for "Real ID" to be up and running by October 1, 2018. The plan was to have the motor vehicle services part of MNLARS operational in May 2017 and leave one development team working on it to provide updates and increased functionality. The balance of the development teams were to be shifted into working on driver services and Real ID, and to release those products by May 2018. That plan has not gone into effect. Only one development team has been working on driver services, while all the other teams have remained focused on fixing problems with and continuing to develop vehicle services.

- The May 2017 release date for vehicle services was delayed. MNLARS users were supposed to have a 10-week time period ahead of time for working in a "training environment" to become familiar with the system. However, there were defects in the training environment that delayed its release, and thus the launch of the actual system. [redacted] was told the defects were only in the training environment, not in the actual system.

- With that delay, the development resources remained dedicated to motor vehicle services longer than expected, and it pushed back the commencement of work on driver services. This is of concern because the October 1, 2018 deadline for Real ID is statutory, and the existing mainframe will not support REAL ID requirements.

- When MNLARS was rolled out on July 24, it was "horrible." DPS leadership was told the system had some "bugs" that could be remedied by "tweaks," and [redacted] represented that the system was working "pretty well" and would be functioning better in a week or two. DPS leadership kept hearing that the system would be better "next week." However, MNLARS was released with defects and gaps.

    - The list of defects with the release is hundreds of lines long, and the performance issues have been "shocking." When the system crashes, that is a performance issue, not a mere "bug." Users were experiencing "frozen" systems and had to exit and start over. The system was creating "pended (hanging) carts" at checkout.

    - DVS did not take in any revenues for most of August. This had downstream impacts for recipients that were expecting the funds.

    - The decision to release MNLARS on July 24 was based in part on the assumption that missing functionalities could be added in a matter of weeks. Some of the functionality that was to be added in August has yet to be delivered.

- The defects and gaps with MNLARS likely do not account for the full measure of frustration reflected back by the deputy registrars. Some of them did not train themselves in the new system until the last minute. MNLARS also involves changes with their workflow. The coincidence of system problems, lack of training, and changes in workflow likely all contributed to their frustrations.

Mainframe versus MNLARS

Prior to or at the time of the MNLARS rollout, [redacted] understood that driver services was being left on the legacy (mainframe) system for the time being. [redacted] also understood that pieces of the vehicle services functionality had not yet been built and were still on the mainframe system. It was further [redacted] understanding that the plan was to move driver services completely off the mainframe system and into MNLARS at some point. In fact, DPS has been informing the Legislature, as a "mantra," that they were planning to decommission the legacy system and avoid the expenses of maintaining it in the future. [redacted] provided the following chronology:

- **September 22, 2017:** [redacted], Meekin, [redacted] attended a meeting set up by [redacted] for this date. Meekin said there were concerns about the ability to continue down the current development path with respect to driver services in MNLARS. He said they needed to consider staying on the current path as one option, but also to look at the possibility of engaging a vendor, and to examine what other states were doing with driver license services and Real ID. There was no mention that driver services was being built on the mainframe. [redacted] felt there was no harm in looking around at other approaches.

- [redacted] attended a meeting of the development team for Program Increment ("PI") 11. The meeting was a two-day event to plan what would be done during the next 10-week work cycle. At the meeting, people were confident that they were building driver services in MNLARS (as opposed to building it on the old legacy system), and would be able to shift more resources to working on driver services.

- **October 5, 2017:** [redacted] was attending a tabletop exercise along with [redacted] They were both summoned to participate in a conference call with the Governor's office. The reason for the call was that the Governor had an upcoming press conference, and those working with him wanted to prepare for the possibility of questions pertaining to MNLARS. The question to be addressed was whether the Governor had confidence that the State would be able to meet the October 1, 2018 deadline for Real ID. [redacted] indicated that the answer was no. This was the first [redacted] heard this and [redacted] was very surprised by [redacted] response. [redacted] response gave rise to a "flurry of meetings."

- **Week of October 9, 2017:** There were a number of discussions regarding MNLARS during this time period. [redacted] was confused by the apparent disconnect between what [redacted] was hearing during meetings with the MNLARS development teams and what [redacted] was hearing from MNIT's leadership. The development teams were taking a methodical approach and working toward the MNLARS project goals.

- **On or about October 27, 2017:** [redacted] attended a meeting with Meekin [redacted]. Meekin reported that he had just learned that the design for MNLARS driver services was being based on the legacy mainframe system. It appeared that Meekin had already shared this information with [redacted]. Meekin explained that the mainframe system would be the "document of record" for drivers' licenses. What the developers were

working on was a MNLARS "veneer" that would interact with and extract information from the mainframe for users.

Before this, nobody ever told [redacted] that the plan to build a new system had been scrapped. News of the plan to build Real ID on the legacy system was "completely and totally shocking." There is currently no funding available to continue maintaining the mainframe system. It would be difficult for DPS to defend its need for funding to maintain the legacy system, since its mantra all along had been to decommission the mainframe to avoid the costs of upkeep.

Failure to [redacted]
Meekin knew for a long time that [redacted], but he did not [redacted]. When [redacted], Meekin had to step in and take over [redacted] duties. Meekin's role was as CBTO, not as a "worker bee on MNLARS." Meekin became completely embedded in MNLARS after [redacted].

Information *not* provided to [redacted]
The investigator asked [redacted] whether, in hindsight, it appeared there was information that should have been provided to [redacted] but was not. [redacted] replied that [redacted] was told prior to July 24 that the system had been tested, and the teams were confident that it would function properly. [redacted] was advised that there had been Quality Assurance ("QA") testing and User Acceptance Testing ("UAT"). Relying on those representations, [redacted] informed [redacted] that [redacted] was "very confident" that MNLARS would function properly when released. In hindsight, [redacted] has since found out that there was a "lessons learned" discussion that identified shortcomings with the testing. There had been no "end-to-end" testing of the system before it was released. In addition, the components of the system were never tested as a system, but rather were tested on an individual, unit basis.

Shortcomings in Meekin's performance:
The investigator asked [redacted] if [redacted] witnessed any shortcomings in Meekin's performance. [redacted] responded:

- It is difficult for [redacted] to say that Meekin should have had more involvement with the MNLARS project. Meekin is a CBTO, not a project manager. In addition, Meekin was stretched thinly between DPS and DOC, each of which provide critical services on a 24/7 basis.

- It is possible that Meekin should have had a better appreciation of the risks that were inherent, given the level of pre-release testing that was done. This risk should have been communicated to DPS.

- [redacted] was the project manager. [redacted] questions whether [redacted] had an outlet to communicate any grave concerns [redacted] may have had about the health of the project.

- [redacted] does not know if the project was staffed properly on the technical side:
    - [redacted] is confident [redacted] learned of [redacted] around the end of May or in early June. Meekin said he had prevailed upon [redacted] to remain with the project longer. Regardless, it was well known that [redacted], and Meekin said in August that he was working toward obtaining a replacement.
    - [redacted] was the person who was essentially running the project, and [redacted] is critical of the lack of a [redacted]. [redacted] voiced [redacted] concerns about this to Meekin. He said he was working on separating out some of the duties of the position because [redacted] had been responsible for too many functions.
    - [redacted]
- [redacted] is concerned that it may be too convenient to blame Meekin for problems with the project. Meekin was spread thinly between DOC and DPS, and it might not have been reasonable to expect him to be "down in the weeds" on the MNLARS project.

[redacted]

Background

[redacted]

Early history of MNLARS

[redacted]

[redacted]

[redacted]

[redacted]

The MNLARS reboot

[redacted] Meekin became the CIO, and [redacted] replaced Meekin as the Information Systems Director. [redacted] MNIT and DVS made a decision to bring the development of MNLARS back in-house. [redacted] discontinued employment with the State. Meekin was the hiring manager responsible for replacing [redacted], and the selection team chose to offer the position to [redacted] was not part of the MNLARS steering committee, but became part of [redacted] meetings about the project.

MNLARS management

[redacted] the Application Director for MNLARS. [redacted] had a strong working relationship with [redacted] "set aside" [redacted][30]

[redacted] recalls that there was "a push" to get [redacted] to hire supervisors under [redacted] since [redacted] was responsible for directing so many people. In hindsight, having [redacted] supervise so many individuals was "probably not the best."

Looking back, [redacted] questions whether the State had "too many eggs in the [redacted] basket." One person could not know all the technology involved and still have a broad enough vantage point to lead the project. It was hard to tell who was actually "steering" the project. A related challenge was that Meekin had "two full-time jobs" in that he served as the CBTO for both the Department of Public Safety and the Department of Corrections.

Relationship dynamics and circumstances

[redacted]

30 [redacted]

[redacted] Meekin had risen through the ranks of the IT world quickly and did not want to expose his weak points or things he did not know. Meekin did not want [redacted] on MNLARS even though [redacted]. When [redacted] offered assistance on the project, Meekin declined [redacted] offers by saying that he and [redacted] needed to learn how to do their jobs [on their own]. Meekin would only ask for help with budgetary and legislative issues. Meekin became angry with [redacted] for being "too helpful" by offering assistance with the project.

[redacted] identified a number of other interpersonal dynamics and circumstances that [redacted] believed contributed to unmet expectations with regard to MNLARS:

- There was no industry best practice that described what they were trying to accomplish with MNLARS because of its unique nature.
- Meekin trusted [redacted] to deliver, and [redacted] did not do so.
- Meekin was "protective" of [redacted]. "You didn't take a concern about [redacted] to Paul." Although [redacted] was "extremely bright," there was no examination of anything [redacted] said or did. [redacted] was the "hero who could not be questioned." [redacted]

Early concerns about the programming

Early in the life of the project, people from [redacted] came to [redacted] and said the MNLARS code was "crap." They described it as "spaghetti." [redacted] indicated, however, that this is not uncommon at the early stage of a project.

Prior to the MNLARS launch, [redacted] raised issues on a number of occasions about product testing. [redacted] questioned why [redacted] was managing (or in charge of) the User Acceptance Testing. That is to say, the people who did the testing fell "under" [redacted] in the organizational structure. [redacted] believes there should be a separation of duties between those who build a product, and those who will decide if the product meets expectations. Typically the operations director or the systems manager will carry out the final certification testing to say the code is ready for production. The final testing should be carried out by the people who speak for the business and people who speak for operations. [redacted] was handling or in charge of the testing, but [redacted] did not understand the task. The business side never really understood their role with regard to testing. [redacted] encouraged [redacted] to "call a foul" on what was happening. The reality is that people like those from DVS do not know what knowledge and information they are lacking when it comes to testing and user acceptance. The organizational structure was set up so that [redacted] was the ultimate leader. There was not a steering committee that was exerting influence on the project from positions of equal footing.

Sometime in October 2017, Meekin asked [redacted] why [redacted] had not said anything earlier regarding [redacted] concerns with the project. But [redacted] had never observed anything that would warrant "calling out a crisis." [redacted] had in fact raised concerns to [redacted] about end-to-end testing of the system that moved payments received from deputy registrars all the way into state

bank accounts. Ultimately, this functionality was tested three times just to show that it did not work. [31]

The "go-live" decision
The MNLARS team went over a checklist for weeks leading up to the July 24 "go live" to ensure that everything was in order. By launch time, the code had not changed in months because it had been deemed ready to go at an earlier date. An earlier launch could have been possible but the users were not ready, and some of the business staff did not feel ready.

Prior to the launch, [redacted] believed the product was going to be "amazing." [redacted] knew there were "nonstandard" things about how the work was conducted, such as testing. But the project also had assets such as human commitment and esprit de corps. Those leading the project knew there were things in MNLARS that were not working as they should be, but the business side said they had workarounds or that repairs could wait. In short, there were "no performance stoppers."

After the launch
After the launch, there were system performance problems; i.e., the system's response time as experienced by users was "bad." Those involved with the MNLARS project were "nose-down from 6:00 a.m. to 9:00 p.m. during the week," and also for most of the day on Saturdays working on solutions.

[redacted] came to understand that the programming code was inefficient, so they tried "to throw hardware at the problem." When [redacted] became aware of the poor performance, [redacted] suggested to Meekin that they increase the computing power ("CPU") and Meekin responded, "Do what you need to do." They increased from 16 CPUs to 56, and forced the system to distribute workload among the CPUs to balance workload. In other words, they had to "bloat" the system to make it work. In a "young system," that by itself might not be alarming. But what was different here was the addition of hardware did not improve performance to the extent that it should have. Until just a couple weeks ago, [redacted] has had to have somebody watching a dashboard at all times to monitor the system's performance. In hindsight, [redacted] now wonders how Meekin [redacted] could not have known of all the problems, if they had been keeping their eyes open during the project.

Because of problems with the system, the MNLARS team had to divert resources from continued development of driver services functionality to work on fixing the system's functionality for vehicles and registration.

Around September 18, [redacted] and asked Meekin how things were going with MNLARS. Meekin replied with a dismal assessment. Meekin at that point began depending [redacted] to fix the system. Meekin was "a wreck" as system performance grew worse, and Meekin was "grasping at anything" to correct the problems. Meekin "took a back seat" to [redacted] when explaining the crises to the commissioners and deputies.

[31] [redacted] later stated, however, that [redacted] did *not* raise the issue of testing with [redacted]

[redacted]

The announcement of [redacted] came on [redacted] but [redacted] had learned about it two weeks before. [redacted] told [redacted] that [redacted] had been talking with Meekin about [redacted] back in February, but Meekin had asked [redacted] to stay until deployment. [redacted] was "shocked" that [redacted] would leave; he thought [redacted] was having "a good time."

Driver licensing and Real ID

After [redacted] left, [redacted] heard Meekin say that they would have to stay on the legacy system for drivers' licenses and Real ID. This surprised [redacted] [redacted] felt that Meekin and [redacted] likely did not intentionally keep this information from the business side as they were generally very open as to what was going on with the project.

Meekin's performance

[redacted] provided the following observations about Meekin's performance on the project:

- Meekin was physically absent quite a bit due to other responsibilities.
- Meekin is an excellent technologist, but did not see the "big picture"; he could "go deep but not wide."
- Meekin "turned the project over to [redacted]"
- Meekin did not use "feedback loops" or have "real conversations" to keep abreast of what was really going on with the project.
- [redacted] could have likely been successful with strong leadership above [redacted], but Meekin did not provide that.
- Meekin may have maintained an aloof posture toward staff and distance from them so as not to expose his own lack of knowledge.

[redacted]

General background

[redacted]

Involvement with MNLARS

Around the middle of November 2017, [redacted] said there was something going "really wrong" with MNLARS and [redacted] get them "out of the woods."

[redacted]

Difficulty of project

MNLARS was an immense, difficult project. The project goal seemed to start with the idea of replacing the legacy system, but DPS had not given a clear description of what they ultimately wanted at the end. MNLARS is a much larger application than the old one, and will serve far more users. When [redacted] began reviewing the project, [redacted] found that the architecture was solid; the problems related to how the architecture was implemented.

MNLARS – lack of technical leadership

[redacted] has had to investigate how the work was conducted and what went wrong. [redacted] provided the following observations:

DPS had not done a major upgrade to this system since 1982. This presented at least two challenges: (1) DPS did not have business staff with experience going through a project of this size before; and (2) figuring out what functionalities the legacy system delivered involved something akin to an archeological dig.

[redacted]

- The state hired over 65 contractors, representing 44 vendors, with only Meekin and [redacted] to supervise and manage them.
- They used an Agile development methodology with a number of scrum teams, each led by a scrum master. There were four or five scrum masters, but they did not have programming backgrounds. Instead, they were basically small-team project managers, i.e., production managers whose focus was on the timing of deliverables. The scrum masters were not technical leads.
    - The scrum masters were not looking at the code that was being produced, or whether it conformed to project standards.
    - The only technical leads on the project were Meekin and [redacted]. This was like having 65 carpenters with only [redacted] foremen. There was inadequate leadership brought to bear on the work of producing the code.
    - After [redacted] one of the vendors – Sogeti – came to [redacted] and said they had been telling Meekin over a period of several months that there were "real problems" with staffing that were causing quality issues.

- Because there was not enough technical leadership on the project, the programmers ended up writing "spaghetti code."[32]

- The State is now "paying the price" for how the project was staffed and the lack of technical leadership.

MNLARS – quality assurance and testing

Sogeti provided a 22-member QA team for the project. [redacted] learned the following from the QA team:

- MNLARS leadership kept telling the QA team to cut the scope of testing, and to do the bare minimum of testing so the product could go out the door. The team felt that Meekin was not very process oriented, did not really understand best practices (or that he was violating them), and wanted to cut corners in testing.

- Sogeti was aware that the coding for the project had not been standardized – everyone was doing their own thing. Because of the lack of technical leadership during the development process, the QA team felt they need to do more testing, not less.

- Sogeti gave Meekin a slide deck on September 20, 2017 cataloging their recommendations.

- MNLARS did not implement a "code freeze" before the commencement of testing. In other words, some teams were testing the software while others continued to modify and develop it. This meant that bugs being introduced into the code *during testing* would evade detection. [redacted] believes that "the minute you touch the code," there are a series of tests that have to be done to ensure that it is still functional.

- All four of the vendors have reported to [redacted] that team members had said there were structural problems with the program. Too much authority was given to developers to write code as they saw fit.

- The testing that was conducted did not address third-party interfaces (that is, other systems outside of MNLARS, such as banks). This is typically addressed with a "mitigation document" by which the application owner (DPS/MNIT) and the third party (e.g., the bank) come to agreement on how their respective systems will interact with one another.

- The QA teams tried to "fight the good fight" with MNLARS management but to no avail. Sogeti told [redacted] that they had been raising concerns to Meekin about the project for over a year. Following the release on July 24, Sogeti began documenting the concerns it was raising.

[32] According to Technopedia.com, "[s]paghetti code is a slang term used to refer to a tangled web of programming source code where control within a program jumps all over the place and is difficult to follow." https://www.techopedia.com/definition/9476/spaghetti-code

- The QA team was aware of the problems (or the limitations on their testing and the risks that resulted), but was not invited to be "at the table" when the Go/No-Go decision was made to launch MNLARS. Had QA been at the meeting, the team would have been able to explain the limitations on their testing. Likewise, the QA team member who worked with response time was not at the Go/No Go meeting.

MNLARS – post-release errors

[redacted] had a chart depicting the number of errors in the MNLARS system. Prior to release, there was a decrease in errors. After the release, the number of errors increased sharply ("hockey-sticked"). After [redacted] the errors hockey-sticked again. [redacted] assessment is that the launch of MNLARS did not increase the actual number of errors, but exposed errors that had not been previously identified because of inadequate testing. [redacted] believes the errors have continued to increase [redacted] because [redacted] has insisted on rigorous testing. Now, [redacted] explained, when they have to "touch" part of the program to fix an error, they are inspecting it closely to see if it can be repaired, or if it needs to be rebuilt.

MNLARS was released on July 24. After that, the teams that had been slated to continue development of the product were redeployed to fix problems with version that was released.

It appears that Meekin's approach to implementing post-release repairs was ad hoc; it amounted to an exercise in "Whack-A-Mole." Approaching fixes in this manner involves a higher degree of risk when the underlying software is not stable; i.e., when it consists of spaghetti code. In basic terms, fixing one problem in an unstable system is more likely to trigger others or have unintended consequences. There are "minimums" in software engineering, i.e., recognized risk thresholds that one should not cross. The less solid the foundation, the fewer risks you can take. The MNLARS team was violating minimums because leadership told them they had to. Going back to the staffing for the project, the team consisted of contractors, and they likely felt they had to do what they were told. The QA teams were told to test by component. They were also told to test each "fix" as it was developed, but they were not able to do "full regression testing."

[redacted] understanding is that Meekin had tested the application's performance (basically, the speed of the application) in July, before the release—but it was not tested again. As they continued to implement repairs, the repairs degraded performance. But the MNLARS team was not aware of this because they did not re-test performance. This failure was consistent with Meekin's statement to team members that he was not a "process guy."

[redacted] assessment is that Meekin and [redacted] may have been influenced by [redacted] one of [redacted]

Movement from legacy system

There are six pieces of the vehicle services application left on the mainframe. The majority of the functionality is now server-based. By the time the project is complete, vehicle services will be completely off the mainframe. Work on the drivers' side has been outsourced to F.A.S.T., with

the goal being to have that project complete in time to meet the October 1, 2018 deadline for Real ID.

[redacted]

Background

[redacted]

Monthly project briefings

Around the end of 2015 or early 2016, CBTOs and project managers at MNIT started coming in on a monthly basis to brief [redacted] on important projects. [redacted] facilitated the meetings, while the CBTOs and project managers were responsible for providing information about their respective activities. [redacted] also attended the meetings. There was always a PowerPoint for the meetings.

There was discussion at most of the meetings about MNLARS, and [redacted] was the "project manager" who attended with Meekin to provide updates. The investigator asked [redacted] what he learned about MNLARS in the months leading up to its release. [redacted] related:

- The general format for the discussions was to identify where things were at with each project, what was coming next, the project scope, and budget. CBTOs and project managers were also asked if they needed any assistance from the [redacted] or management team in overcoming impediments.

- The initial meetings about MNLARS focused on the project's "formation" and "structure," which included topics such as using the Agile methodology, project timelines, and project management housekeeping. Once the timeline was mapped out, the focus of the meetings became an examination of how the project was progressing as compared to the timelines.

    - There was a lot of pressure coming from the "outside world" (not from within MNIT) to "get the project out the door."

- This time pressure, in part, drove the use of the Agile framework, which is a good match when there is a need to show progress quickly. "Showing deliverable progress was in the DNA of the project," and [redacted] regards the use of Agile as a good business decision.

- The strategy for reducing the risk of releasing a defective product was mitigated by reducing the number of deliverables. "You ensure quality by delivering a minimally viable product."

- In the months leading up to the launch, the reports on MNLARS were that the project was on schedule and going well.

- A formal risk assessment had been completed. [redacted] believes Sogeti conducted the assessment in late 2015 or early 2016, and that the assessment report was routed to the Executive Steering Team.[33] During each of the monthly reports, Meekin and [redacted] discussed the then-relevant "high level" risks, and there would be follow-up at later meetings:

  - [redacted] recalled one risk uncovered was how to pay for the system once it became operational—there were concerns about the lack of an apparent funding source for ongoing operations and maintenance.

  - A "big risk" was end-user readiness, that is, the concern being that deputy registrars would not be prepared for the new system.

- [redacted] recalled that there were discussions at some of the status meetings about challenges with respect to User Acceptance Testing. The risk was that of "not getting the right people in the room to do the right tests."

  - The business side was responsible for a lot of the End User Testing, which involved writing test cases and scripts.

  - The technology side of the project, however, got ahead of the business side, and there ended up being a backlog of testing.

  - Usually, there is a "Quality Assurance Lead" who helps facilitate the UAT process. The lead talks through the tasks and maps out the process, so the business side is not left to their own devices to figure out what to do.

  - There were issues around not having enough people to do the end user tests.

  - It was reported that this issue was resolved.

[33] [redacted] believes [redacted] received a copy of this, and related that this document was used throughout the lifecycle of the project.

- There discussions at the monthly meetings about staffing.
    - There seemed to be a fair amount of turnover among scrum masters.
    - There was also discussion about the business staff; although they were considered to be "on the project," they were also responsible for discharging their normal duties.
    - [redacted]

Other topics at the monthly meetings

- [redacted] did not recall whether [redacted] span of control was ever discussed, i.e., that [redacted] was overseeing the work of 65 or 70 people. [redacted] suggested that there were many managers and supervisors involved with the project, but acknowledged that they worked on the business side, not the technical side.
- [redacted] acknowledged that the meetings at MNIT tended to focus on scope, schedule, and budget. [redacted] agreed that these discussions would not ensure that the software would meet expectations. [redacted] explained, however, that User Acceptance Testing and traceability are safeguards to help ensure the delivery of a high-quality product. [redacted] said there is still is an open question with this project as to whether MNIT received "user acceptance" from the right people, i.e., those whose opinions matter.

Supervision of Meekin

The investigator asked [redacted] to explain, from [redacted] perspective, what the people at MNIT were doing to make sure that Meekin was leading the project correctly. [redacted] response focused on processes; in general, the "big thing" was the monthly status meetings. MNIT also requires various "offices" to report project status into MNIT's reporting system.

Resources to help Meekin succeed

Meekin's role on a project like this would have been as the "owner" or "champion." [redacted] would have been the "technical lead." A manager such as Meekin is responsible for knowing when he or she is "in over their head" and to fill in for those deficiencies.

The investigator asked [redacted] if MNIT had the resources to guide a project of this scale, [redacted] responded that [redacted] was not aware of any other project of this scale. The "PeopleSoft"[34] accounting system was large and took 10 years to develop, but it was an off-the-shelf product. MNSURE was a hybrid of off-the-shelf and custom development. [redacted] could not think of any other development project that was on a par with MNLARS.

[redacted] identified some resources that MNIT has available to CBTOs leading large projects. [redacted] Office has standard project management templates and polices for project

[34] PeopleSoft is the foundation for the State's financial, procurement, and reporting system. https://mn.gov/mmb/accounting/swift/. It was implemented in 2011. http://www.swift.state.mn.us/home.

management, but [redacted] was not sure how helpful or applicable these would be since MNLARS was "unusually large."

MNIT's senior leadership was "always" trying to connect CBTOs with others CBTOs who had done large projects, and there could have been such an effort in this case. MNIT provides no training on how to lead a project of this scale, but believes the MNLARS people may have gone through some training on Scaled Agile Framework ("SAFe").

[redacted]

Background

[redacted] there were three software architects who had been working on the project for a very long time; a data conversion team; and two developers. There was also a business team, which included a project manager and business analysts. There was mistrust between the business and technology teams. [redacted]

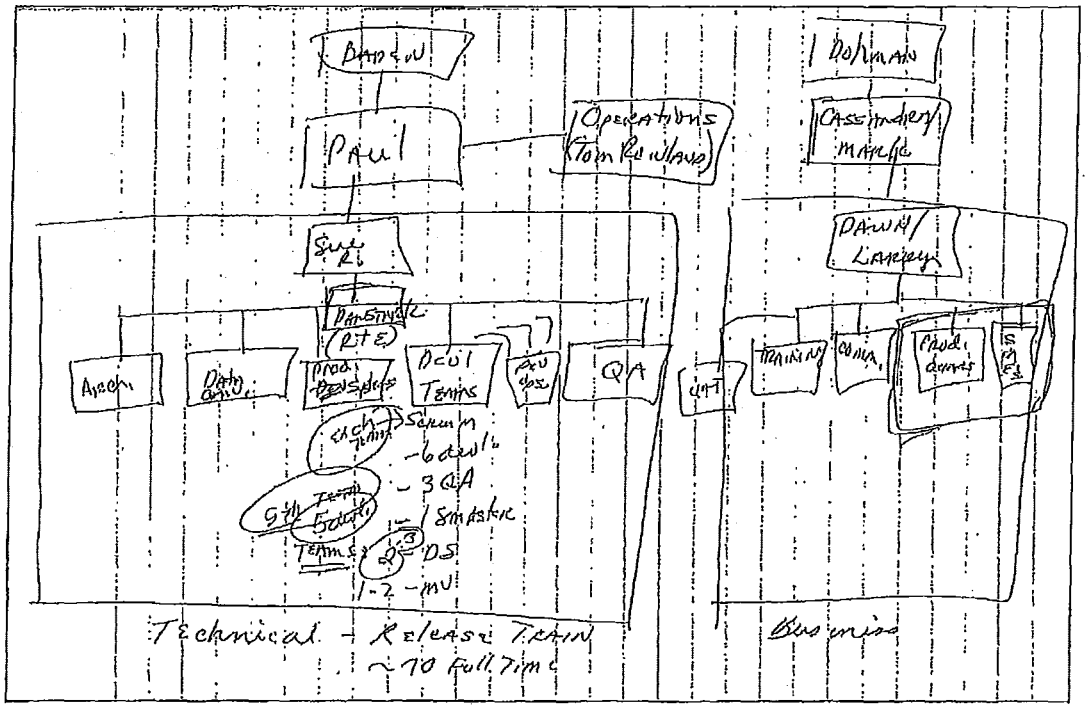
- HP had already separated from the project. HP had developed one product for vehicle permitting, but it was not shippable.
- The State had decided to do an in-house, custom build of the MNLARS software, rather than to buy something off the shelf.
- MNIT had decided to move forward with an Agile development framework, and one Agile development team had already been assembled.
- The system architecture had already been developed.

[redacted] stated "decision of significance" had also been made to move away from DVS's former business process, which used a "back office batch system." Under that process, deputy registrars basically took in documents and sent them along to the State, which processed the paperwork and updated the database on an overnight basis. The new system was designed to be "customer facing" and operate in real time. This meant that all of the information for a transaction would need to be gathered, and all fees would need to be calculated up front. Basically, the new system envisioned moving data entry tasks from DVS central office staff to the deputy registrars. While this would eliminate lags in time between when a transaction occurred and when the change would appear in State records, it also represented a large change from a technology perspective and a "culture shock" for deputy registrars. [redacted] and Meekin tried to help the business side

understand that implementing this change would require extraordinary communications and help-desk support.

Organization of the teams and responsibilities

[redacted] drew an organization chart depicting how the teams and responsibilities came to be organized after the project hit its stride:



[redacted] elaborated on the chart. The left side was the "technical side" of the project, known as the "Release Train." It consisted of around 70 fulltime people.

- The Release Train Engineer" ("RTE") position is shown directly beneath [redacted] and reported to [redacted]. The RTE was more of a project manager than a technical resource, and was responsible for keeping all the people in the Release Train on track. People on the technical side reported the status of all work in a tracking system ("Rally"). [redacted] allowed anyone access to Rally who asked. Meekin had a license, as did [redacted] and later, [redacted].

- Under the RTE were (from left to right):

  - Three to four software architects.

  - A data conversion team.

- A production team that was responsible for running the legacy system while MNLARS was being developed, and for making preparations to shut down half of the legacy system when MNLARS vehicle services were brought online.

- Four development teams that interfaced with the business side and wrote code for the project. Each team included a scrum master, six developers, and three Quality Assurance people.[35]

- A development operations team ("Dev. Ops."), which took care of the "build process."

- A Quality Assurance ("QA") team. [redacted] stated that although the QA function is shown separately on [redacted] chart, there were QA people assigned to all the teams.

- [redacted].

[redacted] explained that the right side of the organizational chart depicts the "business side" of the project. From left to right,

- "UAT" refers to User Acceptance Testing. This team tested the software that had been developed and either accepted or rejected it.

- Training. [redacted] did not elaborate on this.

- Communications. [redacted] did not elaborate on this.

- Project Owners and Subject Matter Experts ("SMEs"). These people were responsible for defining the functionality requirements for the end product, i.e., what the system had to do.

After drawing and explaining the organizational chart (as if anticipating questions yet to come), [redacted] commented that "people had no interest in coming to terms with the complexity" of the MNLARS project. The system had to deal with 285 different kinds of license plates and over 1,200 fees, resulting in tens of thousands of possible combinations of license plates and fees.

Staffing of the "technical side"

The investigator asked [redacted] whether, in view of the flat organizational structure on the technical side, there was enough "help" on the project. [redacted] answered by saying that when [redacted] first started on the project, [redacted] had a manager for the production team named [redacted]. [redacted]. In December of 2016, [redacted] had the request ready to refill the position and gave it to Meekin so he could attach funding strings, but for whatever reason he did not do so. [redacted] agreed with the observation that it was "a pretty flat

[35] [redacted] clarified that after the July 24, 2017 MNLARS launch, the technical side created a fifth development team by pulling staff from the other four. The creation of this team allowed some resources to stay focused on developing driver services while other resources worked to address gaps and fix defects with the software that had been released.

organization." [redacted] followed this by saying, "When I look at this in retrospect, in lots of ways *they* just couldn't conceptualize what *they* needed to prepare for—when you make as many process changes as they made, like going from batch to real-time customer facing."[36]

The investigator told [redacted] that there had been some suggestions that [redacted] team had "too much to do and not enough help to get it done." [redacted] agreed that was true, and said, "I think we were understaffed."

The investigator asked [redacted] if [redacted] ever told Meekin that they were understaffed. [redacted] responded, "I'm going to pause on that. I'll be honest... I think this is being laid at Paul's feet. I think that's not fair. There were a lot of parties in this drama, who put a lot of pressure on this project." [redacted] went on to relate:

- The business side of the project was "massively understaffed." They did not, "by orders of magnitude," have enough people to do the training, communications, and support."
- Business staffing on the project was "further diminished" (distracted) by deputy registrars who were "constantly assaulting" the project. For instance, when the launch of the project was deferred in January, the deputy registrars "descended on the legislature within hours." An already understaffed business organization had to pull away from the project to respond to criticisms
- The Office of the Legislative Auditor ("OLA") opened up an audit while [redacted] team were trying to get the product ready for launch. The legislative hearings were tough.
- Nowhere in the midst of these challenges did anyone say, "Take the time you need to be assured of quality and to build up the project the way you need." The amount of day-to-day "warfare" that DPS had to respond to was massive.
- DVS may not (or did not) have had the time required to test and accept the software. The people in vehicle services were trying to do their "day jobs" while also identifying and providing the technical side with the requirements for MNLARS. The business side was already stretched thin, and dealing with the audit and legislative demands stretched them even thinner.

The investigator asked [redacted] if it was true that there were contractors supervising contractors on the technical side. [redacted] stated that there were only 10 fulltime State employees on the project around the time [redacted], before they started staffing up. When it came time to scale up, they did so with contractors. They took four of the ten State employees and embedded them into scrum teams. Each scrum team had one State employee on it. The RTE was a contractor because there was no one in the State who had done Agile at this level. As to whether it was a concern to

[36] [redacted] follow-up comments at times were *non-sequiturs*, and are included in this summary as [redacted] provided them during the interview. [redacted] repeatedly deflected questions about potential issues on the technical side by pointing out perceived shortcomings with the actions or approaches taken by DVS personnel, and the perceived lack of support from the Commissioners' Offices at MNIT and DPS.

have contractors supervising other contractors, [redacted] said that was a Human Resources question that no one had ever raised [redacted]

Technical and business leadership

The investigator asked [redacted] if there was enough technical leadership allocated to the project to guide the development process. [redacted] explicitly restated the question differently: "You could broaden the question to, 'Was there enough technical and business leadership allocated to the project?'" [redacted] then went on to list a number of criticisms of the leadership at MNIT and DPS.

- [redacted] disagreed with the decision to release all the functionality of the MVP at the same time, but that decision had already been made. Normally, the better practice would have been to break the release into smaller components, but the variable wheelage tax had to be online before January 1, 2018, and that became a driver of the schedule.

- [redacted] related that about two months before the release, [redacted] had asked [redacted] for weekly meetings with the leadership at MNIT and DPS to prepare for the launch. [redacted] wanted to have discussions that helped others consider whether the agencies' expectations about MNLARS were realistic, and to ensure they understood what it would take to make the release successful.

    - [redacted] told [redacted] there were "always" problems with software when it is launched, and there needed to be a good process in place for triaging those issues. [redacted] advised that the agencies be prepared for an onslaught of 2,500 phone calls on the first day of the release, and should plan on the calls taking about 20 minutes apiece. [redacted] said they should "deputize" all available staff to answer phones.[37] Meekin was present when [redacted] made the request.[38] Meekin said he would "run with" the idea of weekly meetings, but the meetings did not happen.

    - Instead of weekly meetings, there was only one meeting and it occurred about a week or ten days before the launch. At the meeting, [redacted] catalogued all the things that could go wrong, including downtime, defects, and users who did not remember their training.

[redacted] believes that the "core problem" surrounding the MNLARS release was that the State did not step up to deploy "a world-class support system in front of their real-time vehicle system." [redacted] added that, [redacted] had suggested mobilizing a large team to respond to customer problems when MNLARS was released. [redacted] made this suggestion at a "champions meeting" attended by Meekin, [redacted]. SES participated in the meeting by phone. After [redacted] mentioned this, [redacted] began working on a help desk solution. [redacted] heard from Meekin that

[37] [redacted] said that there were only five people assigned to answering phones when the launch occurred and there were "hundreds if not thousands of calls." [redacted] stated that the Interactive Voice Response system at DVS was already running near capacity before the MNLARS release, and the failure to plan for the onslaught of calls resulted in customers and users getting busy signals when calling after the MNLARS release.

[38] [redacted] initially stated that [redacted] made the request to Meekin, but later clarified that [redacted] made the request to [redacted] while Meekin was present.

[redacted] remarked once about finding space for 100 people and telephones to help expand the help desk, and that [redacted] had suggested to DPS that they talk to MNSURE to learn about their business experience.

[redacted] believes that the problems with MNLARS was not because there was a lack of technical leadership during the development process, but rather because agency leaders at DPS and MNIT "did not realize what a big deal this was." This was a project that involved lots of risk, and everyone (including commissioners) "should have been at the table." The other problem they had was that there was not a single person in the press who understood how the system worked. [redacted] had also suggested bringing in the media early so they could start telling them their story, but leaders of the agencies were afraid of doing this.

Criticisms of Meekin

[redacted] is critical of Meekin for not ensuring there was a smooth transition when [redacted]. Staffing on the technical side of the project was too thin. [redacted] told Meekin at the time of [redacted] that [redacted] would be happy to help make sure there was a smooth transition in leadership with [redacted], but Meekin never responded to the offer. [redacted] believes this was a mistake on Meekin's part. He instead asked [redacted], which [redacted] did. Meekin's mistake might be understandable because he had never released a software product of this size, and there was nothing in his background that prepared him to do so. In the end, there was never any time for an orderly [redacted].

August 2017 post-launch period

The MNLARS group formed up a "Top-5" team to work on issues in priority order. The issues included fixing defects and dealing with gaps. As for an example of a gap, nobody told the technical side about the "kick-out process" that happens when a registration mailed in by a driver is not accepted. Accordingly, this functionality was not built into the first release. There were also a lot of interactions after the release with "finance" about getting money into the State's bank account. In addition, nobody informed or trained the deputy registrars about the move to accrual-based accounting that would accompany MNLARS. [redacted] the State moved more resources into fixing bugs and addressing gaps.

Pre-launch testing

DVS appointed [redacted] to be in charge of UAT, and then contracted with Sogeti to show them how to do it. The business side moved some people into UAT. [redacted] was not involved with the UAT.

The investigator asked [redacted] who was in charge of QA for the project. [redacted] replied that the question was "tricky" and did not answer it. The State contracted with Sogeti to conduct "integration testing" and "performance testing," and Sogeti also provided a couple of people to the UAT team. [redacted] indicated that the customer (DVS) accepted the software and decided to release it, and it was up to DVS to decide whether to release it with defects ("you always ship with defects") or to defer the release. [redacted] acknowledges, however, that it would be disingenuous to say the business side is responsible for accepting bad software when they might not have understood what was to be done in terms of testing and acceptance.

The investigator asked [redacted] whether the QA people raised any concerns or reservations about launching in July. [redacted] did not answer the question. Instead, [redacted] said that all of the people involved in the project understood the complexity, except those at the top. [redacted] stated that the QA people did a "herculean job" but they were never going to have a test case for every situation that came up. They tested what they knew about and wrote as many cases as they could. There was not 100% coverage in the testing.

[redacted]

[redacted]

Background

[redacted] SES provides IV&V services. This work consists of coming into projects with a checklist and comparing performance against best practices. This adds value because using proven best practices is likely to reduce risks in terms of cost, schedule, and quality. SES first came into contact with people on the MNLARS project in the spring of 2015, and started work in May of that year. [redacted] understood Meekin to be MNIT's Director at the Department of Public Safety.

SES's process

SES's audit reports describe the processes they use. SES collected data, performed analysis, and reported their findings. Data collection involves examination of written materials, sitting in on project meetings, and conducting interviews. [redacted] try to be "flies on the wall" when conducting audits so as not to interrupt work on the project. SES sometimes must make exceptions and conduct interviews when there is a need for information. For projects like MNLARS, SES compares data it gathers with best practices for large-scale IT undertakings. The reports SES delivered identified risks and actionable recommendations that the State should or could take to eliminate or mitigate the risks.

The audit process is set up to allow for two-way communications. SES submits a draft report to the client, and then there is a turn-around time of at least a week for recipients of the report to comment on it. The project team, in this case MNIT and DVS, could provide written comments to SES. SES generally will only make changes if factual errors in the draft report are identified.

Scope of the MNLARS engagement

SES tailored its work with MNLARS, in part, based on input from Meekin. That is, SES focused more on project management than technical documentation; they were not looking at source code or detailed design specifications. Meekin did not explain why he wanted that focus. The audits

examined management in general, including both the business side and the technical team under Meekin.

Global comments on MNLARS risk management

Before asking specific questions, the investigator asked [redacted] if there were any global observations [redacted] could share on the risk management practices [redacted] observed with the MNLARS project. [redacted] stated:

- Risk management on the project was "kind of a mixed bag," but this is true even in the best-case scenarios with projects run by state governments.
- There were some areas where State officials seemed more responsive than in others. For example, DVS brought additional staff on board when SES explained that they need a professional project manager who understood some of the risks that SES was identifying.
- The State did not act upon some of the specific recommendations given by SES for mitigating risks.
- Traceability was not managed carefully as the project went forward. [redacted] explained that when something is being designed and built, there should be an ongoing conversation about whether the product will do what the owner needs it to do. This is known as traceability.
    - SES expects to see a design that traces back to the project requirements (what the product is supposed to do), and they also expect to look at the code and trace it back to the design. A project should only go live after those two things are assured. SES "was preaching about that from the beginning of their work, but the State did not really act upon that until the last six or eight months."
- SES made observations about the project schedule, identifying what they believed to be weak spots, because the State did not understand how much time certain steps would take. [redacted] did not have enough information to determine if the project was on schedule or off, because the State was not tracking it closely enough.
- Some of SES's observations were based on its experience, rather than on industry benchmarks. For example, the State believed they would complete all of their user testing in three to four months, but [redacted] had never seen it done in fewer than six. [redacted] expressed concerns about this. [redacted] does not believe the State was ignoring SES on this. Rather, it seemed that the State seemed to be waiting to get the "right people hired" to complete the testing work.

2016 Annual Audit Report—quality management risks

In response to the investigator's questions, [redacted] explained particular findings set forth in the final version of the 2016 Annual Audit Report (identified by SES as "Report AA-2F").

Risk related to testing:

Page 31 of the report identified the following risk:

> There is a risk that.... [t]est execution; applying defect fixes; and successful re-testing will not be completed in time for scheduled Releases. There will not be sufficient time for the new UAT Team to prepare plans, develop test scripts/cases; validate previous and current Program Increments, and perform thorough UAT Test planning and management.

[redacted] stated SES began identifying risks with regard to having enough time for testing in the first quarterly report it issued in 2015. This concern dated back to when SES commenced its work on the project, and it was still an issue in 2016. [redacted] described this risk as one of the "pressing issues" with the MNLARS project.

The Mitigation Recommendation for this risk (on page 31 of the report) states that there should be a User Acceptance Testing ("UAT") plan that includes "Solid Entry and Exit criteria."[39] "Solid entry criteria" refers to the idea that software should be already fully tested before it goes to the "business side" for UAT.[40] The reference to "exit criteria" suggests that the software should not pass user testing until "everything" has been tested and all the requirements have been met. As time went on, SES kept trying to explain these recommendations to the State more clearly. [redacted] states these efforts should be evident upon walking through the various quarterly and annual audit reports to see how the recommendation evolved over time.

On page 31 of the report, it states that "Vendor staff have stepped up to lead and manage UAT." When SES began auditing the project, Sogeti was doing QA on the technical side (QA), but was not doing UAT. Eventually, a smaller team from Sogeti became involved in planning and conducting UAT. Sogeti served as the knowledge base to DVS, and DVS provided personnel to conduct the UAT.

Risk relating to the defect management process:

Page 32 of the report identified the following risk:

> There is a risk that.... Defect management will not keep pace with UAT test velocity, which is anticipated to accelerate....

[redacted] related that defects are identified when a new software product is tested. Defects are inevitable, and they are supposed to be managed in a timely, deliberate way: The Quality Team should document the defect, the technical team should verify that it is actually a problem, and

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[39] [redacted] disoussed UAT in the audit report, and [redacted] comments are included here not because of [redacted] concerns about UAT, but because [redacted] recommended that there be "solid" entry criteria before the software was submitted to UAT. That is, [redacted] sought to put [redacted] readers on notice that the software should be thoroughly tested *before* UAT was conducted.

[40] A number of the people involved in MNLARS referred to testing conducted on the technical side as "QA," (or Quality Assurance) and testing conducted on (behalf of the) business side as UAT (User Acceptance Testing).

then the defect should be submitted to some kind of prioritization process. The highest priority defects should be addressed in order. Once it has been fixed, the "fix" should be retested.

SES asked the State for its defect management process, and the State could not show SES anything that was documented. Some people on the project could have had a great plan in mind for what to do, but it was not written down or widely understood. In sum, there was not a rigorous process for managing defects that was being followed.

To stay on schedule, the schedule itself needs to include time for dealing with defects. The MNLARS project schedule did not include time for dealing with defects. Compared to other similar projects, MNLARS did not seem to have as many defects that were identified during testing, but this raises a question as to whether the testing was rigorous enough to detect the defects. When you see ongoing defects for a number of months after the project is released, it is suggestive of—but does not conclusively establish—that the pre-release testing was inadequate. [redacted] perception was that the people leading MNLARS were responding to increasing time pressure from entities outside of the project, at the expense of doing thorough testing.[41]

Risk relating to testing:

Page 33 of the report identifies a risk that some user-facing requirements will not be UAT tested. This pertains to the earlier discussion of "requirements traceability." The following diagram is on page 33 of the report:

2017 Annual Audit Report
This audit period covered the release of MNLARS on July 24, 2017. There were defects when the product was released. SES was aware of the defects at the time of issuing the report, but was not concerned about them at that point; it was too soon following the release to make any judgment. In hindsight, SES now knows that the MNLARS team had "quality issues" with the product.

The investigator asked [redacted] to elaborate on certain portions of the 2017 Annual Audit Report.

Risk of insufficient time to perform UAT:

A table on page 18 of the report describes a risk that was first identified in the "QR3" (or third-quarter) Audit Report from the spring of 2016: "Insufficient time to perform UAT." The report identified a discrepancy between how the auditors and how the State classified the risk: the auditors viewed it as "open" and the MNLARS team considered it "closed." This section of the report was intended to convey a broader message about risk management—SES felt the odds of risks coming to be realized were greater because the MNLARS team was not tracking and dealing with them. This page of the report merely provides a couple of examples along that line.

[41] [redacted] sat in on some project meetings where discussions reflected a perceived need to move the project forward swiftly "because of the political pressure."

Risk relating to Human Resource management:

At the time the 2017 report was issued, the technical staff were being "challenged with the competing demand[s] of production defect triage, grooming, correction, re-testing, etc." (Page 20.) As a result, the report noted, there was reduced capacity for ongoing design, build, and test activities. (*Id.*)

The MNLARS team did not have sufficient capacity to design, build, and test the product they were endeavoring to deliver. People on the MNLARS team acknowledged this problem existed and said they were trying to get more staffing, but they had not built a documented business case showing they needed more help. [redacted] tried to explain to the team that they had not done the work necessary to show the extent or location of the staffing gaps. This made it more difficult to advance a business case for hiring more people.

The report noted that in practical terms, this meant that resolving the human resources issue was not just a matter of adding staff, but also developing a staffing table. The MNLARS team should have had a table showing how many positions had been approved for the project, so the approved staffing level could be compared to how many people were actually working on the project. This would have exposed the gaps. SES could not make a finding that the project needed more staffing without being to say what positions and functions were vacant.

Going back through SES's earlier reports would show that SES had raised the issue before; [redacted] felt SES was "always saying to [the State]" that they needed to show SES the staff that was approved to work on the project. The project team responded by producing an organizational chart for DVS, and a list of people working on the project. These documents did not, however, show the staffing gaps. Given the lack of information, SES was not able to determine whether the project was staffed with adequate personnel to complete the work expected.

Risk relating to quality management:

Page 24 of the report includes a statement: "However, we found no documentation indicating that the Release 1.2 MV "GO" decision included validation that all User Stories were traced to UAT test cases that successfully passed testing."

[redacted] elaborated: The auditors were able to see that the MNLARS team conducted UAT and that the product passed UAT. But they did not see documentation showing that the testing was thorough; i.e., that the product met the requirements for functionality.

The auditors had earlier recommended that the MNLARS team set stringent criteria before putting the product into production, and that the business manager make deliberate decisions about whether they could live with the defects that were identified and whether there was a suitable workaround. However, the business side of the project "caved a little bit" about having stringent criteria. As pressure mounted to release the system into production, the business side decided to allow medium-severity risks go into production as long as there were workarounds. In reality, the quality was lagging behind expectations as the release date approached, because they did not have time to get all of the defects fixed.

[redacted] was aware that [redacted], upon becoming involved with the project, insisted on regression testing.[42] [redacted] regards regression testing as critically important, and could not see evidence that the MNLARS team was doing full regression testing leading up to and after the release.

2016 Fourth Quarter review:
SES issued a quarterly audit reported, dated December 7, 2016, which covered the period of August 27 to November 25. A new risk, denominated as #3.10.1, identified in the report was:

> MNLARS design and build will not deliver functionality in time for testing, defect correction and re-testing for future planned Releases. A combination of decreased Scrum Team staffing and increased staffing needs resulted in the status; technical staff are temporarily filling multiple positions, further reducing design and development capacity. As of 25 November, a portion of this risk was tentatively in the process of being mitigated with pending hires and on-boarding of additional Scrum Team staff.

(Report at 24.) The project was originally slated for release in October 2017, and this audit finding was made in the period that covered the projected release. The message SES meant to convey was that the MNLARS team needed to slow down and focus on quality. Ultimately the MNLARS team pushed back the release for approximately nine months, to July 2017. [redacted] stated that delays of this length are not surprising on projects of this scale; in fact, they are expected. What [redacted] did find concerning was the "lack of a solid plan for going forward."

In the next quarterly audit report, dated March 29, 2017, SES revisited this risk and provided the following observations and recommendations:

> Specific staffing numbers were not available to the Audit Team during this reporting period. However, observed vacancies combined with staffing discussion in management meetings indicate MNLARS schedule changes are due in part to staffing shortfalls. The apparent continued shortfalls – correlated with schedule delays and the MNLARS defect backlog – suggest that this risk has in fact already been realized and should be converted into a formal project issue.
>
> **Recommendation:**
>
> 1. Significantly or completely cease design and build activity unless it is required in the next release. Instead, focus technical resources on defect resolution and re-testing until MNLARS quality is acceptable to the user.
> 2. Establish a MNLARS organizational chart that shows whether each position is filled completely, partially (as a shared resource), or vacant; and any projected dates when filled positions will be vacant and vice versa.

[42] [redacted] explained that regression testing refers to testing a product after changes have been made to it, to gain assurance that the changes did not unintentionally impair functionality.

3. Summarize staffing information described in #2 above, like the table below....

(Page 20.) The next quarterly audit report, which was issued on June 14, 2017, showed some progress: team resources were being redirected from design/build activities to defect management. However, there was still "no up-to-date organizational chart" that showed personnel who were largely or entirely dedicated to the MNLARS project work, and the staffing documents that existed were out of date and inaccurate.

[redacted]

Background

[redacted]

Project risks

MNLARS might be the largest software application that the State has ever attempted to build from the ground up. When the decision was made to build it, there was no proven "off-the-shelf" alternative in the market. In the perfect view of hindsight, the MNLARS project was fraught with risk from the outset. Additionally, MNLARS represented a transformational shift in the way deputy registrars carried out their work. MNLARS changed the system from one that was paper-based batch-processing to one where deputy registrars would do the bulk of the data entry work while a customer stood at the counter. This shift to a real-time business process required robust help-desk support, which DPS was not adequately prepared to provide.

The MNLARS project "totally changed" how deputies did their work, without their buy-in. [redacted] views it as essential that there be "a really good collection" of users involved in developing new business applications. With MNLARS, MNIT started the development work with multiple deputy registrars having input into the process, but only had one deputy involved in their day-to-day work.

Monitoring of and instructions to Meekin

[redacted] were monitoring the project as it went along. [redacted]. During the course of these meetings, [redacted] asked Meekin:

- To make sure that business users were involved in the entire development process, from design to development to rollout;
- To make sure that business users were part of the test group; and
- To make sure that there was a corps of "super users" out in the field.

Meekin did some of these things, but not to an acceptable level. Meekin [redacted] did, however, implement a number of [redacted] recommendations. One was that there be a lead person on the business side of the project; [redacted] initially filled this role. Another was to train a group of super users.

[redacted] also directed Meekin toward resources to help him succeed with the project. When they were trying to add State employees to the development team, [redacted] pointed Meekin toward an employment recruiter on staff at MNIT. When they were engaging contractors, [redacted] helped move the procurement documentation through the system faster. [redacted] also informed Meekin of others in State service who could provide advice and counsel: [redacted].

[redacted]

Pressure as to timing

There was substantial pressure to put MNLARS into production as soon as possible. However, the MNLARS release had been deferred before, and [redacted] had instructed Meekin, "Nobody forgets a bad rollout. If it takes a few more months to clean this up and push it out, let's take the time."

Demands on Meekin

Meekin was the CBTO for both DPS and DOC. Meekin never suggested he was overburdened, but [redacted] knew there was always a chance of burnout with a software rollout. Accordingly, [redacted] spoke with [redacted] in the spring of 2017 about the idea of relieving Meekin of his responsibilities at DOC.

Replacement of [redacted]

[redacted] learned that [redacted] would be leaving the project a few months before [redacted] actually departed. As [redacted] departure became more imminent, [redacted] was concerned that Meekin did not have a replacement for [redacted]. [redacted] asked Meekin whether HR was slowing down the process. Meekin replied that he was not encountering any obstacles, but rather that he "was the problem" in moving the process forward. Meekin did not, however, explain why he did not fill [redacted] vacant position. Meekin never did replace [redacted] before going out on administrative leave in November.

No actionable indications of trouble

[redacted] knew that Meekin came out of the private sector and had a software development background. The previous administration at MNIT had faith in Meekin's abilities to lead the project, and nothing happened to suggest that trust was misplaced. To the contrary, Meekin

spoke and conducted himself in a way that inspired confidence, and [redacted] had somewhat of a "rock star" background in the private sector.

Meekin [redacted] "reported well" when giving updates on the project. They conveyed bad news as well as good, so MNLARS seemed like a "normal, healthy project." Although [redacted] did not see the SES audit reports, Meekin [redacted] gave [redacted] a presentation about the audit findings and recommendations, as well as a summary of what they were doing to address them.[43] Their project management reports were rich and thorough.

At one point, [redacted] called a meeting of the architects on the project. They spent about four hours meeting and "nerding out" over the MNLARS architecture. The programming looked "thick" in the middle software tier, but [redacted] was not fluent in the programming language they were using, and the architects dissuaded [redacted] of [redacted] concerns. It was not on [redacted] radar that the project would have turned out as it did.

One concern for [redacted] was that Meekin [redacted] were so beholden to Agile methodology that they were not looking beyond the next hilltop and doing long-term planning. [redacted] told them they needed a roadmap as to what was going to be released and when. [redacted] is frustrated that Meekin [redacted] "never got it."

Testing

[redacted] talked "a lot" to Meekin [redacted] about testing around the fall of 2016. [redacted] MNSURE, and advised them, "You can't shortcut the testing" and, "It's a lot easier to do less right than to do more and fix it after the fact." Building time into a project schedule to test for and repair defects is "basic batting practice stuff" in software development.

In their ongoing status reports, Meekin [redacted] "really focused on quality and deferred the release to July." "They would give me defect reports. You could watch software defects versus software development. They were fixing defects at a rate I would expect. Before Go-live they had gotten them down to where there were no Severity Ones (i.e., critical defects) with no show-stoppers. [redacted] Paul assured me that would be the case: that a quality product would be released."

In conversations with Meekin, [redacted] inquired whether traceability of testing to system requirements had been verified. [redacted] was assured that traceability had been addressed and was verified.

In hindsight, it's a fair inference to draw that the testing was not adequate to identify the actual number of defects. But at the time, it seemed like Meekin [redacted] had taken a few extra months to make sure the software was working properly.

Adequate staffing on the business side

During [redacted] exit interview, [redacted] told [redacted] that DVS had not been staffed adequately to support the rollout of a real-time business process. [redacted] said DVS should have increased its

[43] [redacted] indicated that the audit completed by the Office of the State Auditor also provided reassurance as to the health of MNLARS.

staffing to handle the volume of calls that came in with the rollout. [redacted]

Problems after rollout

MNLARS was released into production on July 24, 2017. [redacted] and was out [redacted] categorizes [redacted] recollections of events temporally according to whether they occurred: (1) before [redacted] (2) [redacted]

MNLARS did not function as expected once it was released into production. Meekin kept saying it would be okay and that they just needed a couple of weeks to clean it up, and initiated a cycle of hotfixes, of which [redacted] was not aware at the time.

Before [redacted] asked Meekin why they did not have people out in the field, standing alongside deputy registrars as they worked with MNLARS, in an effort to understand the problems they were experiencing. It "made [redacted] crazy" that nobody would do this. [redacted] wanted Meekin to pull the user community together, identify and prioritize the problems, and start fixing them. [redacted] assumed that line-level users were providing input into decisions about how to recover from problems with the release. [redacted] level of concern about the project elevated because Meekin's reports and prognosis were not lining up with the level of angst from the user community. [redacted] also had a "[redacted] examine MNLARS, and considered placing the project under [redacted] charge at the time, but did not do so.

[redacted]. Sometime after [redacted], [redacted] contacted [redacted] to check on the status of MNLARS. After meeting with Meekin, [redacted] gave [redacted] Meekin's assurance that they needed a couple of weeks to fix things, and then "it's going to be okay." [redacted] reported that MNLARS was working for most transactions, the team was rolling out fixes pretty quickly, and they should see a turnaround. MNIT passed Meekin's assessment and assurances on to the Governor's office. These representations turned out to be inaccurate, and ended up putting the Governor in a "horrible situation" after he conveyed them publicly.

[redacted] began seeing signs that MNLARS could not be quickly or adequately repaired. [redacted] started to suspect Meekin's team was rolling out untested hotfixes when [redacted] heard that repairs to the system were causing other problems. The [redacted][44] had occurred, and Meekin said that they could fix the motor vehicle functionality, but suggested that the State might want to go with an outside vendor to develop the driver's license system. The information that MNIT was passing along to DPS reflected what Meekin was telling MNIT: they were in for a "bumpy ride" in the short term but things would get better.

[redacted] to deal with the problems. [redacted] had already become distrustful of the information [redacted] was receiving from Meekin and began sitting in on in conference call meetings with the MNLARS team.

[44] *See* [redacted] interview summary.

[redacted] "grill[ed the MNLARS team] about the architecture." [redacted] met with Meekin and the IT folks to go through the MNLARS architecture in detail during the week of [redacted] and found flaws. There was "crisscrossing between domains" that was causing data collisions. These problems were not identified before the product release because the MNLARS team did not conduct "complex load testing." They conducted simple load testing, on a component-by-component basis. There was no end-to-end testing.

Upon spotting these problems, [redacted] decided to bring in Microsoft Premiere. Microsoft identified and documented the problems, and MNIT went forward with fixing "the biggest offenders." [redacted] the Governor that MNIT's earlier assessment—that the problems with MNLARS could be promptly remedied—was wrong. The Governor was "very upset" [redacted] and deservedly so. Because of the poor architecture, software components will need to be rebuilt going forward.

The faulty architecture was causing performance issues, i.e., system slowdowns. [redacted] asked nearly every day, for three consecutive weeks, whether it was possible to improve system performance by adding more computing capacity ("throwing more CPU at the problem"). The response from Meekin was that they had already maxed out the capacity. [redacted] examined the system and found that another 35% more computing power could be added and they did so, which helped mitigate some of the performance problems.

In the midst of the post-release problems, the MNLARS team was still "rolling out code" while the basic problems with architecture remained unresolved. [redacted] later learned that Meekin had ordered the MNLARS teams *not* to test the code before it was released (i.e., to execute hotfixes). The very last straw for [redacted] was that one of the [redacted] deleted the production database (the underlying collection of data that MNLARS stores and uses) during the middle of a business day. This entire situation reflected a lack of software development discipline. [redacted] knew [redacted] needed an immediate change in leadership on the project. [redacted] pulled Meekin off the project and put [redacted] in charge of it. [redacted] told [redacted] not to release any software unless it was fully tested. [redacted] has since reported back [redacted] observations on problems with the project, which affirmed [redacted].

Other observations

[redacted] does not believe that Meekin harbored any ill intent or deliberately made any missteps in in his leadership of the project. Rather, [redacted] believes that Meekin's shortcomings related to a lack of competence.

[redacted]

Background

[redacted]

MNLARS project focus
Since 2014, the efforts within MNLARS have been primarily focused on vehicle services. This emphasis resulted from the need to collect variable wheelage taxes on vehicles starting in January 2018, which the old mainframe system would not do.

Project staffing and leadership
[redacted]

In early 2016, there was just one development team in operation on the technology side. Over time, the staffing expanded and came to include four development teams, a data team, and a group of architects. The project started moving along at a good pace once this staffing was in place. [redacted] tried to have a "project owner" or Subject Matter Expert ("SME") from DPS embedded in each development team, but that did not hold across the board.

[redacted] did not implement a director-manager-supervisor-worker structure typical to state government. In fact, there was not really another manager on the technology side [redacted] and there were no supervisors between [redacted] the 40-50 people doing the actual work. Many of the workers were contractors.

[redacted] was involved with hiring developers, scrum masters, and other individuals brought into the project. [redacted] "did a lot of the supervision of the larger teams." Although there were scrum masters on the various teams, they were generally not managers or supervisors. One of the scrum masters was a State employee and the rest were contractors. [redacted] DPS employees were on the teams to make decisions about the prioritization of work, not to manage or supervise technical production work.

Strategy for delivering functionality
There was not time to build everything into MNLARS that the State wanted. Accordingly, MNIT decided to go with a Minimally Viable Product ("MVP"). [redacted] gave [redacted] assurances that they would be able to quickly add new functionality after the MVP was released. [redacted] reflected, "I don't think the tech side anticipated the issues we were going to have. We were told that we would be able to add functionality shortly after we went live and that didn't happen. I've learned so much more about the importance of testing that we didn't know before."

Sogeti's role
Sogeti was responsible for a lot of the Quality Assurance work on the project, and also had a team doing User Acceptance Testing. UAT "maybe started ramping up" in the spring or summer of 2016 when the first development team began work. The first development team was known as O-scrum (pronounced, "Oh-scrum"). When UAT started, Sogeti contractors were doing all of it. Over time, DVS started involving its people in UAT.

The investigator asked [redacted] if UAT was completed before MNLARS was released. [redacted] replied, "We certainly didn't do as much testing for our MVP as we are doing now." [redacted] additionally stated, "We didn't have full regression testing before release." [redacted] stated [redacted] did not know what level of UAT had been completed before the release.

Time pressure

[redacted] related that those working on the MNLARS project felt a sense of time pressure: legislators were taking the position that the project had taken a long time and cost a lot of money, and they wanted to know when they would see results. When the Real ID deadline was announced it created additional pressure, and some development teams needed to be redirected to work on that.

[redacted] management style

[redacted] had confidence in [redacted] seemed capable, but "maybe didn't listen enough" to concerns that were being brought to [redacted] also appeared to be somewhat of a micromanager.

Meekin's management style

Meekin's responsibilities at Corrections took him away from the project, and he relied on [redacted] to lead MNLARS and keep him informed. [redacted] does not know of anyone bringing concerns to Meekin about [redacted]

Testing

It was frustrating to [redacted] that they were not able to complete a full cycle of testing on MNLARS after fixing defects in the spring of 2017. [redacted] was informed that automated testing should expose most of the problems, and that the deputy registrars would identify other issues during the then-upcoming ten-week adoption phase.

When asked whether MNLARS was tested in components or as a complete system, [redacted] stated, "We produced a couple of titles" but could not test titles en masse. "There are some things that you can't really test until you start producing documents." [redacted] stated that they also tested the finance portion to make sure that money flowed to the correct recipients.

Go/No-go decision

[redacted] was part of the Go/No-go discussions before the product was released, but [redacted] "didn't know what [redacted] didn't know" about testing. [redacted] stated [redacted] was "putting some confidence in the people on the technical side who said we were looking good." Sogeti was in "some meetings" prior to the release, but [redacted] does not recall them raising any concerns.

Release

[redacted] mentioned the need to have all hands on deck to answer incoming calls when MNLARS went live, and that is in fact what happened. DVS set up a call center and had "everyone" answering phones. They also had managers and supervisors involved to pass information along quickly. They talked to a lot of deputy registrars those first few days.

[redacted]

Background

[redacted]

Details

[redacted]

Meekin was able to devote time and energy to the agency when he first came to the DOC. But during the last few months of his tenure, Meekin struggled with the workload of trying to serve two agencies. MNLARS became "all-consuming" for him, and [redacted] understood that the project had to be his priority. Meekin's last few months at DOC were "incredibly stressful" for him, as he felt he was unable to give the agency the attention he wanted.

Meekin was very well respected at DOC. Managers enjoyed working with him, and agency leadership was pleased with the service he provided. Meekin functioned as part of [redacted] management team. He met regularly with DOC's senior leadership. Senior leaders at DOC, including the Commissioner and the two Deputy Commissioners, comment positively about Meekin's service there.

Meekin understood and internalized the agency's mission and vision; in fact, when establishing the governance process, Meekin recommended rating projects on how closely they aligned with or supported agency goals. Meekin ultimately was able to streamline the agency's IT governance process. He brought MNIT/DOC communications to a higher level. Meekin did a "very good job" in the realm of keeping DOC informed, "considering his limited time" to work with the agency. Meekin did a very well at maintaining customer satisfaction. The supervisors within MNIT who reported to Meekin would sometime comment that he was not around much and they were unable to get time with him, due to his obligations to DPS.

[redacted]

Background

[redacted]

[redacted]

[redacted] There was not much of an IT foundation at DOC when Meekin arrived there, and Meekin came into the agency and triaged it. Because Meekin's time as CBTO was divided between DPS and DOC, he did not have the time or capacity to bring about substantial changes with the function, structure, or delivery of IT services. The business and IT staff at DOC felt that Meekin worked visibly with agency leadership to create a governance structure for IT, and [redacted] believes this was a significant accomplishment. Because Meekin was serving two agencies, he would not have had the time to accomplish much beyond that. [redacted] does not think Meekin's service at DOC would be a fair measure of his performance because of the limited amount of time he had to work there.

People at DOC speak highly of Meekin and he has champions within the agency. [redacted] sense is that Meekin had strong working relationships with people at the agency, and that the people there regarded him as credible. The observations that people at DOC make about Meekin refer to his lack of time and capacity to serve the agency.

[redacted] Meekin was attentive to the right things including risks, had a good sense of collaboration, and worked hard to get people engaged.

Meekin's work on MNLARS required him to lead a massive effort. [redacted] questions whether MNIT had the organizational capacity to support MNLARS at times critical to the project. When [redacted] MNLARS was going through a "re-genesis" and MNIT was at the same time in the midst of its own consolidation. The consolidation was a significant agency focus, and the organization may have lacked the "spread of management capacity" to guide a project of MNLARS's scale and complexity, especially one where any "speed bumps" would be on full display before the public. If MNLARS had not been such a high-impact, visible project, it may have been possible to delay the release for a couple of quarters to allow more time to work on it.

Overall impression

Meekin is a person of good intention and [redacted] would be willing to continue working with him.

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[redacted]

Background

[redacted]

[redacted] reaction to working with Meekin

[redacted]

[redacted]

[redacted]

[redacted] Meekin appeared to hold [redacted] "on a pedestal," and he encouraged [redacted] to "do what [redacted] was doing." [redacted] took umbrage to this remark as [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Background

[redacted]

Performance as CBTO

BCA is very independent in terms of how it works with MNIT. Meekin has performed adequately in terms of being aware of and supporting the BCA's mission, keeping the BCA informed, and being available for communications when needed. [redacted] has no basis for opining on Meekin's level of job knowledge or performance in the area of customer satisfaction.

MNLARS

The BCA provides the conduit through which all law enforcement gains access to vehicle and driver information. They are "still suffering today" with data quality issues in MNLARS that impact law enforcement officers in the field.

From the outset, [redacted] felt that the priority customers for MNLARS were the deputy registrars and financial institutions; despite the critical nature of the BCA's mission, the agency was given low priority. BCA representatives had to "push themselves into the project from day one" to make sure their voices would be heard. BCA personnel did not feel their concerns were heard or given the weight they deserved as MNLARS was being developed and released. Right before and immediately following the release, the BCA was not even allowed to raise issues or concerns that they believed warranted attention. For the first three months after release, the BCA participated in Monday morning project meetings, and "nine out of ten times they were not allowed to talk." The BCA's issues with MNLARS are only now being addressed, six months following the release.

Data for testing

BCA was not allowed to test the MNLARS system using "real" data for a long time, but had to use simulated data. Simulated data works properly with the system, but the "real" data within the state's records includes names with numbers in them and addresses that have no zip codes. [redacted] commented, "We are still suffering today with data quality issues that impact field performance for law enforcement."

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[redacted]

Background

[redacted] with Meekin over the years and believes they have had a "very healthy relationship." They have been able to communicate well and come to agreement on any issues requiring resolution.

The BCA's stance toward MNIT

In basic terms, the BCA is subject to FBI information polices and must enforce them, which in turn requires the agency to have control over its technologies and the people providing tech services. The BCA operates independently from MNIT as compared to the rest of DPS, and values autonomy and a "hands-off" approach from MNIT. Meekin has been responsive when [redacted] has asked him for assistance. Some of the tensions that the BCA experiences with MNIT have nothing to do with Meekin, but result instead from the BCA's independent stance on technology issues.

Organizational and leadership areas

Overall, Meekin understands and is and is able to articulate the BCA's mission and priorities. [redacted] regards Meekin as a smart and articulate person. Meekin voices the position that business needs should drive IT. He articulates good leadership and vision.

MNLARS

The BCA provides the conduit through which law enforcement accesses driver and vehicle records from DVS. The BCA's position on MNLARS was that its law enforcement customers' needs for data were very important, and the system needed to provide them with the same level of information and services as the old system. MNLARS appeared more focused on meeting the needs of deputy registrars and financial institutions, and the BCA had difficulty getting Meekin's attention on this issue.[45]

The lack of communication about the MNLARS project was also troubling, especially in the early years after termination of the HP contract. The BCA had put a full development team in place to build the interface between criminal justice users and MNLARS. The team included a product manager, a project manager, developers, and quality assurance. It felt like the team was on hold for years, knowing it would have to do a lot of work, but no one from MNLARS could say when the work would be required. They would go for long periods without hearing anything, and would then be notified of tasks that had to be completed in short order.

[45] [redacted] explained that DVS – a peer division to the BCA within the Department of Public Safety, likewise does not view the BCA as partners or customers, and does not view law enforcement as an important constituency. DVS seems to view their customers only as the general public, which access services and data through auto dealers and deputy registrars.

[redacted] seemed to put more structure around the MNLARS project when [redacted] came on board, and the BCA started getting more directions and deadlines. In the period of 2016 and 2017, MNLARS seemed to be rolling along at pace, but the MNLARS team never really treated the BCA as a customer. The BCA got to sit in on the project meetings, but their communications "were always on the back burner.

Since MNLARS was released, there have been a lot of problems with the accuracy of data going out to law enforcement, but MNLARS did not even begin triaging the BCA's problems until September 2017. The BCA had to press hard just to get their problems into the queue for resolution. Meekin was very stressed over MNLARS and told [redacted] he needed some slack (or "grace") from [redacted] to deal first with the more public-facing issues. Meekin would be empathetic when [redacted] raised problems, but was unable to solve them. In the meantime, flags on data that are important to law enforcement were not outputting consistently. The partial-plate search functionality that was in the old system was not included in MNLARS. As a result, the BCA was unable to assist the St. Paul Police when they needed this functionality to investigate a drive-by shooting. [redacted] does not believe that Meekin had any ill intent. [redacted] regards him as a good person. [redacted] surmised that Meekin could have been "in over his head" or overwhelmed by the multitude of problems.

Meekin's management of [redacted]

BCA people working with MNLARS felt that Meekin was particularly ineffective at managing [redacted].

It felt like [redacted] "had full control to do whatever [redacted] thought was in the best interests of the project," and that Meekin was deferential to [redacted].

[redacted] When [redacted] raised these issues to Meekin, it did not feel like he took much action. He seemed to acknowledge [redacted] concerns but did not act on them.

[redacted] did not want to allow the BCA to test MNLARS using "real data." This was "another roadblock" [redacted] created. [redacted] went to Meekin and eventually prevailed on him to override [redacted] decision. But the BCA "lost a lot of time" during a month-long battle over this issue.

Meekin's comments about MNLARS

In or around March 2017, the go-live date for MNLARS was pushed back to July. Meekin said that the system could have gone into production at that time, because "80% is good enough in IT." [redacted] mentions this because it is striking how Meekin underestimated the impact of problems with MNLARS when it went live.

After MNLARS was released in July, Meekin "started pointing fingers" at the DVS business side. He lamented that they were "not really on board," and that they were working in silos with nobody from DVS really seeing the big picture in terms of system requirements. Meekin expressed regret that they did not have an overall picture of the processes.

The BCA is getting ready to move a new criminal history system into production and has done "a lot of talking with the MNLARS team" to find out about what they have learned through experience. Meekin commented that he was frustrated that the MNLARS team did not do nearly enough testing before releasing the product.

[redacted]

Background

[redacted]

Working relationship

[redacted] had a good working relationship with Meekin. [redacted] finds him to be helpful and responsive.

Meekin's leadership and management style

Meekin is even-keeled and pretty "hands-off." He generally wanted to be aware of what was happening at the BCA, but did not seek to get involved at a detailed level. During the consolidation transition, Meekin conducted monthly "Coffee with Paul" meetings for the IT staff to give updates about what was going on. He would ask about "small things" that had gone well so they could be recognized and celebrated, which [redacted] appreciated. Meekin tended to distribute credit and blame on an equitable basis. He was "really fair" about recognizing accomplishments.

Frequency of contact with Meekin and availability

[redacted] Meekin conducted the meetings mostly by phone from June 2017 through early September. Once MNLARS went live, Meekin cancelled many of their meetings. Meekin was available to [redacted] for questions or phone calls as needed.

Knowledge of the BCA's business
Meekin is aware "at a high level" of what [redacted] section does and the importance of it. [redacted] Meekin reviewed those reports and asked questions about them during their check-in meetings.

Meekin's perceived strengths
Meekin is pleasant, friendly, and a good communicator. He is able to bridge between technical and business concepts in conversations with non-technical people. He is responsive and "really personable."

Meekin's perceived weaknesses
Overall, [redacted] believes that Meekin does not ask the right questions about matters under his charge, and is not willing to be proven wrong. Meekin "seemed pretty confident" in what he knew, but was not aware of gaps in his own knowledge and did not seem to be on the lookout for them.

One example of this arose when it came time for the BCA to test the system they developed for relaying data from MNLARS to their law enforcement and criminal justice customers. [redacted] knows there are quirks and errors in DVS data; they were introduced into the system over time, such as when data fields in the legacy system were repurposed. [redacted] wanted to test the BCA's system for relaying information by using "real data" from DVS, not with sample data that had been loaded into the system. [redacted] acknowledges that using real data might not be a best practice in the IT world, but defends [redacted] preference by explaining that they needed test conditions that included the errors and quirks inherent in the actual system. [redacted] Meekin was "adamant" that they use "test data" instead.[46] [redacted] Meekin "were unwilling to change their approach in the face of reality."

Toward the end of 2016, Meekin relented and allowed BCA to test using real data. BCA obtained access to this data in December of that year. At that time, they believed MNLARS would be going into production in February, so the BCA was left with a compressed timeframe to complete the testing. Because the launch ended up being delayed, the BCA had time to catalog defects in the system and put them into the backlog for the MNLARS work. In the end, the dispute over data resulted in wasted time and resources: BCA had started testing using the test data, and then had to repeat the testing process once they had access to production data. [redacted] approximates that two people each spent two weeks doing work that ultimately had to be repeated.
Another weakness Meekin showed was an inability to adapt his management style. Meekin prefers to be hands-off and manage projects from a high level. With MNLARS, he did not "dive in" when he should have. [redacted] is leading a technology project now and understands [redacted] needs to get down into the weeds to verify that what people are telling [redacted] is correct. Meekin was under the impression that everything about MNLARS was on track when clearly it was not.

[46] [redacted] provided the following additional background: Around 2011 or 2012, the BCA created a new system for law enforcement customers to access driver and vehicle data. In the course of doing so, BCA discovered "all kinds of data oddities," due in part to people repurposing data fields over time. BCA developed an appreciation for the "craziness" inherent in the data in the DVS systems. BCA believed it imperative to test MNLARS using production data (i.e., "real data") so these problems could be identified and addressed before the system went live.

Meekin did not manage [redacted] effectively. [redacted] It was clear that Meekin accepted [redacted] vision for and decisions about the project without question. Meekin did not seem to be open to hearing concerns about [redacted]. From [redacted] perspective, there were many good people on the MNLARS team who were not being heard.

Meekin's time was split between DPS and DOC. He likely did not have enough time to adequately serve both organizations. He needed to be involved in MNLARS. Meekin may not have realized that he was struggling to keep up with both organizations, but should have, and should have worked to remedy the situation.

Delivering customer satisfaction

[redacted] views Meekin as being "pretty hands off" in terms of delivering customer satisfaction. He was not proactive, but would provide assistance to [redacted] if [redacted] asked.

[redacted]

Synopsis

The investigator contacted [redacted] on January 16, 2018 after an attorney for Sogeti informed that the company would not agree to interviews of its personnel. [redacted] relayed information [redacted] has received from Sogeti about its role in and quality assurance work on the MNLARS project.

Background

[redacted] Sogeti personnel have reported to [redacted] that they were told by MNLARS management not to run certain types of tests, which went against their professional judgment.

Documents referring to testing

A Minnesota Legislator made a request for all documents pertaining to testing on the MNLARS project. [redacted] reviewed the responsive documents. One was a summary prepared by [redacted] of Sogeti describing the work the company had performed. It stated at page four that the QA team was told not to do proper testing before the MNLARS release for a period equating to a few months or so. [redacted] provided this document to the investigator.[48]

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[47] [redacted] indicated that the BCA had not asked for MNLARS to do anything new or different than the legacy system had done, but instead wanted to make sure that law enforcement customers had essential functionality available to them when the product was released.

[48] This document is included as an exhibit to this report.

Sogeti's complaint about non-inclusion

Meekin [redacted] did not seek input from Sogeti during the Go/No-go decision-making process prior to the launch of MNLARS. Sogeti has complained to [redacted] that QA was not given a "seat at the decision-making table like a trusted partner," and felt that its contributions to the project were not valued.

[redacted] explained that it is not uncommon in the IT world to hear QA people complain about being treated like "second-class citizens." [redacted] estimates that it is likely that half of Sogeti's clients "don't give them a proper seat at the table." The irony here, however, was that MNLARS invested heavily in QA services, with a high ratio of QA personnel to development personnel. MNLARS was paying on the order of $4 million every six months on QA, and Sogeti wanted to provide helpful input. It made no sense to invest so heavily in QA and then not listen to their concerns: "To have an army of testers and not use them or listen to them is weird."

Leadership and management style

[redacted] has learned that there were a lot of technical challenges that arose while the project was underway that people brought to the attention of Meekin [redacted]. The impressions of the team members have been consistent across the board: When they brought up problems, Meekin and [redacted] generally responded by brushing them aside. "[redacted] and Paul would tell them not to worry about it." The perception from the team is that Meekin and [redacted] did not remove obstacles, but avoided them. They "became good at shoving things under the rug; that's the biggest beef from the team." Sometimes Meekin and [redacted] delegated issues to others, but then did not follow up to ensure that steps were taken to resolve them.

The MNLARS technical team was under the impression that MNLARS was [redacted] and that Meekin was overly reliant on [redacted]. Meekin gave the impression that he did not want any of his decisions or [redacted] questioned. When team members raised concerns to Meekin, he would say, "Asked and answered" even though the issues had not been resolved. People came to feel like they were putting their jobs on the line by continuing to raise concerns, so they stopped doing so.

Time pressure

[redacted] understanding is that time pressure on the team became "crazy" around April or May of 2017, when they were told they had to get both vehicle services and driver services done by October 2018. They began "cutting corners to the extreme." The project was not doable at that juncture with the resources on hand. Instead of saying they could not get it done, "they kind of ran in a blind panic."

User acceptance testing

[redacted] opines that it was a good decision ("no way around it") to have Sogeti lead the UAT, even if the company reported up through the technical side of the project. Conducting user acceptance testing is labor-intensive and requires a specific skill set. DVS did not have adequate personnel on the project to conduct the testing; DVS staff were assigned to perform testing work on top of their regular duties and simply did not have time to accomplish all of it. One deputy registrar assisted with UAT. As a result of the staffing situation, there was no path forward for completing the testing without enlisting assistance from Sogeti.

[redacted] has been involved with product testing [redacted] In [redacted] opinion, the UAT on MNLARS was adequate. There were three pre-release versions of the MNLARS code: Versions 1, 1.1, and 1.2. There is UAT closure documentation embedded in the project, and it shows that there were in the order of 10 failed test cases out of 500. [redacted] does not know if all of those failures were closed-out effectively, but it appears the UAT was conducted in a reasonable manner.

Testing as a safety net to identify problems

A consistent observation relayed to [redacted] by the MNLARS team is that there was a lack of technical oversight on the development work, and the resulting problems could have been caught by having an adequate QA safety net.

There were problems with the MNLARS code that stemmed from inadequate technical oversight; i.e., there was no management layer ensuring that consistent rules were being applied across the various development teams. As a result, the different development teams did things differently. They used different rules for such things as calculating fees, deadlines, and when a month ended.

The root cause of the failures with MNLARS that was exposed after release was faulty programming. Load testing would have been a critical step in catching problems with the underlying code. Full regression testing would have caught the logic errors between the components. Fixing the errors might have delayed the release, but testing would have at least allowed an informed decision about the costs and benefits of releasing right away versus deferring.

[redacted] explained, "Doing these tests in the IT world are no-brainers, and the failure to do them are professionally embarrassing." [redacted] agreed that there were a number of factors that weighed in favor of striving for greater certainty that MNLARS would function properly: the product was going out to an audience that was skeptical and would express displeasure in a very public way if it did not work; the product would change the way that deputy registrars did business in a way they were likely to find unwelcome; and the deputy registrars were not a captive audience to which DVS could mandate training. These factors magnified the downside risk of a bad release, and should have weighed in favor of more stringent testing, not less.

But on the other hand, the business partner may have underestimated these risks. DPS and DVS claim that they rather than the deputy registrars are the experts on how the system should work. DVS also claimed they were the experts on how to release a new system to the deputy registrars. The only thing that can be controlled on the tech side is making sure the software works when it goes out.

Load testing

The load testing conducted prior to the release was not adequate. Sogeti states that it had a state-of-the-art load testing system to use with the project. The system can emulate hundreds of users being on the system, trying to do different things with different connection speeds. Sogeti used this system, but was given an "undersized environment" to test. [redacted] and Meekin indicated it would have cost an additional $300,000 to do the testing on a "full-sized system" so decided it

would not be done. Sogeti identified this as a risk. The decision not to conduct full-scale load testing should have been reported as a project risk.

Full regression testing

[redacted] has an understanding of what happened with regard to regression testing based on the documents [redacted] has seen and based on [redacted] debriefing sessions with people from across the MNLARS project. The QA teams recommended full regression testing prior to release but were told not to do it because of time pressure. After [redacted] gave this instruction, Sogeti escalated the issue to Meekin, but Meekin did not change the decision. Sogeti believed it needed to protect itself by documenting the advice it had given and the fact that it had not been accepted. The documentation consisted of meeting notes, which [redacted] has seen. [redacted] agreed to request these documents from Sogeti and forward them to the investigator.

Conducting full regression testing prior to release would have tested the components as a system. As it was left, they were only tested on a unit basis. "Once you test the fix, you retest the entire system all over again on an end-to-end basis." The instructions from [redacted] and Meekin were to only test the components that had been worked on.

[redacted]

Background

[redacted]

[redacted]

[redacted]

[redacted]

- [redacted]

[redacted]

THIS AREA INTENTIONALLY LEFT BLANK

[redacted]

Background

[redacted]

- Meekin seemed to be most comfortable at the "20,000 foot level" and did not seem to be interested in getting down into the weeds.

- [redacted]

[redacted]

[redacted]

Oversight

[redacted] responsibilities focused more on the "day-to-day, back-office" administration of the agency. [redacted] had greater responsibility for supervising Meekin's portfolio of agencies and project outside of MNLARS, while [redacted] did more of the check-ins with Meekin on the MNLARS project. [redacted] met with Meekin and [redacted] about once a month for an hour to review MNLARS.

Complex load testing

The investigator asked [redacted] if [redacted] was aware that the MNLARS team had opted to conduct load testing using a "smaller" test environment as a cost-saving measure. [redacted] had no recollection of ever hearing about this. [redacted] assumes that the trade-offs between the costs and risks of using a smaller test environment were issues that were probably discussed with the business side, but if there was a deliberate choice to go with a system that appeared undersized, the risks should have been reported up to [redacted]. Had this been brought to [redacted] in all likelihood would have counseled in favor of doing more rigorous testing before MNLARS was released into production. [redacted] observed, "A lot of things show up when a system is under stress."

Sogeti's concern about not having a seat at the decision making table

After [redacted], [redacted] learned for the first time of Sogeti's concern about not having a seat at the decision making table. Sogeti was hired to identify risks and what could go wrong, and not listening to their input was "a fool's errand." In the lead-up to the launch, [redacted] assumed that Sogeti's input had been considered, and that Sogeti would have signed off on the release subject to the risks they identified. [redacted] provided the investigator with status reports from the MNLARS team leading up to the launch.[49]

Regression testing

[redacted] was under the impression that the code that was being released had been subjected to full regression testing, and that the testing continued up to the release point. "It would be irresponsible to cease regression testing in the months leading up to the release." Ensuring that software to be released is fully tested is something that "any developer worth their salt" would do. It would be unusual to cease regression testing. If it was discontinued, then this should have been reported up to [redacted].

[49] These status reports mainly outlined pre-launch activities and do not shed any light on whether Sogeti's input had been allowed or considered prior to the July 24 release.

Rollback plan
The idea of having a rollback plan was discussed and rejected. The old system was paper-based and going back to it was not an option. The lack of a rollback plan created additional risk, and the release of MNLARS was delayed to July to give the team additional time to focus on quality.

Timing of Real ID
In around April or May of 2017, the MNLARS team was given the mission of developing Real ID. Before that, they were legislatively prohibited from working on Real ID. By that time, [redacted] understood that much of the work on MNLARS had already been completed and the development teams were mainly focused on just assuring the quality of the product.

Hotfixes
[redacted] was aware that the MNLARS team was doing quick fixes to the code in order to address problems, and assumed the fixes were subjected to full regression testing before they went out. [redacted] does not believe one can make a business case for releasing code without full testing—a project actually gains speed by slowing down and testing the code before putting it into production. [redacted] came to suspect a lack of testing when releases seemed to be giving rise to reports from the field of additional problems.

[redacted]

Synopsis
The investigator contacted [redacted] to explore and clarify any differences between "full" and "automated" regression testing.

Details
The automated regression testing capabilities that had been developed within MNLARS only tested a fraction of the system. "Full regression testing" referred to a three-week process that tested a much higher percentage of the system.[50]

[redacted] explained that the set of automated tests (the "automated regression suite") that had been developed for MNLARS only covered about 40 to 50% of the system's "happy path." The term "happy path" excludes scenarios where users make mistakes, something goes wrong, or error conditions arise. Thus, the automated regression suite for MNLARS only tested about 12 to 25% of all user scenarios. Conducting automated regression testing still left 75% of the MNLARS system untested. The automated regression testing that the MNLARS team performed was not full regression testing.

The MNLARS team stopped doing full, manual regression testing about three months before the launch. They stopped doing "mini manual regression testing" at the same time. They ceased after

[50] [redacted] explained that it is a best practice to impose a "code freeze" during and after full regression testing, so all changes to the software have actually been tested when the testing cycle is completed. [redacted] noted that when [redacted] took over MNLARS and imposed a code freeze, the development teams indicated that had never happened before.

being tasked with developing Real ID, and having to split the development team. At the time the team shifted resources to Real ID, the MNLARS software was still in its "incubation" period.

[redacted]

Background

[redacted]

Meekin's concerns about being overburdened

In early- to mid-2017, Meekin told [redacted] he was having difficulty covering his obligations at both at DPS and DOC. [redacted] told Meekin it was "his call" if he should continue at DOC. Meekin wanted to consider the situation further before making a decision. In August 2017, Meekin told [redacted] that DOC should be removed from his portfolio so he could concentrate on MNLARS.

[redacted] monitoring of MNLARS

[redacted] sometimes attended monthly meetings that [redacted] had with the MNLARS team to monitor the project. [redacted] received reports in around mid-April 2017 from the MNLARS technical team. The reports indicated that Release 1.0 had been through thousands of QA test cases, discussed the audit results, and indicated at that point that the release decision was up to the business side. [redacted] also reviewed at least some of the audit reports issued by SES.

[redacted] was not involved in any of the discussions leading to Go-live decision; there were other people attending those meetings and [redacted] was fully occupied with other duties. In early July 2017, there was a meeting of the MNLARS steering committee prior to the launch, but [redacted] did not attend.

[redacted] at one point expressed concerns to Meekin that there were "a lot of consultants" on the project and asked when Meekin would get State employees involved to take on the work. Meekin

and [redacted] felt they would be able to hire more State employees once they released the first version of MNLARS.

[redacted] monitoring and concerns

[redacted] was monitoring MNLARS more "deeply" than [redacted] and was receiving updates on a more frequent basis. [redacted] wanted to see "how MNLARS was built," so in mid-2016 [redacted] convened a meeting to review the MNLARS architecture.

[redacted] informed [redacted] about [redacted] concerns that MNLARS was not engaging the deputy registrars enough, and [redacted] indicated [redacted] had communicated this concern to [redacted]. [redacted] was informed that some working groups were established to include deputy registrars.

Communications and assumptions about testing

Meekin communicated with MNIT's leadership about testing within the MNLARS project. He discussed the number of test cases they had run, the scope of the testing, and the use of an automated test suite. [redacted] and others in leadership positions were under the impression that full regression testing had been done all the way through the project, at least on an automated basis. It was never communicated to [redacted] that full regression testing was not being done, and it would be shocking to [redacted] if it were not. The failure to do so would not be in in keeping with MNIT's expectations for a project of this size and would be a departure from best practices. It is a fundamental best practice across the industry to ensure a product is fully tested before releasing it.

[redacted] would be very surprised to hear that the QA vendor (Sogeti) complained that was not given a voice in the release decision and that its concerns not been factored in to the decision. "The whole point of hiring [Sogeti] was to bring in the counterbalance of testing." Prior to the release, all indications were that the MNLARS system was good "across the board," which implied that the testing professionals had determined the project was good to go.

[redacted] did not understand there to be any limitations on the load testing that was performed. There was never any discussion about the testing environment used for load testing. It is a recognized best practice to have the test environment "be as close as possible" to the real environment, and [redacted] assumed that was being done. If there was a decision to go with a lesser environment, the cost versus risks involved should have been laid out in front of the business (DVS) to make that decision.

The [redacted] meeting

[redacted] is aware of the meeting to which this [redacted], but [redacted] did not attend it.

Post-release fixes

[redacted] was aware that the MNLARS development teams were rapidly producing fixes after the July 24 release, and assumed they had all been tested. The normal practice would have been to run regression testing, and [redacted] assumed that was happening. Skipping full regression testing would only make sense if the system was "in a total down state and there was nothing you could do to make it any worse."

Post-release communications

[redacted] attended a meeting on August 21, 2017 with the commissioners from DPS and MNIT, deputy registrars, and legislators. The MNLARS team described the situation then at hand as involving "working through some normal bugs." The registrars were saying there were lots of problems with the system but it was getting better, and that the agencies needed to communicate better and set up a help-desk to assist them. DPS said it would work on communications. It was generally a pretty positive meeting with everyone thinking MNLARS was headed in a better direction.

Paul Meekin
MNIT CBTO, Department of Public Safety
January 26, 2018

Procedural:
Attorney Gregg Corwin represented Meekin at his interview. Meekin reviewed and signed a Tennessen warning prior to questioning. The interview began at 1:30 p.m. and concluded at approximately 6:45 p.m. The investigator advised Meekin at the outset that breaks would be taken upon request for personal necessities and that he was free to consult in private with Mr. Corwin if he desired.

Background:
Meekin holds a bachelor's degree in in computer science and a master's in business administration. Meekin worked in the information technology field as a developer, architect, and manager before accepting a position as an IT manager at the Department of Public Safety in 2007. He was initially responsible at DPS for supporting smaller divisions, but had no involvement with the project that would later become known as MNLARS.
DPS promoted Meekin in 2009 and made him the Director of MNLARS. In 2011, the former CIO resigned and Meekin became the acting CIO. His appointment later became permanent. [redacted] stepped into Meekin's former role as MNLARS Director while Meekin focused on more executive duties such as consolidating IT functions within the agency, managing budgets, and managing vendor relationships.

In early 2015, MNIT was receiving pressure from the Legislature over the perception that there were too many CIOs throughout the State. To cut down on the number, MNIT added DOC to Meekin's portfolio, leaving him with responsibility for two of the State's four largest agencies. MNIT advised Meekin at the time that taking on DOC would not be particularly burdensome because it was a relatively small agency with only 50 IT employees. Meekin came to learn, however, that DOC was a large, complex organization, and its IT function had been understaffed.

[redacted] Meekin was spread way too thinly with his responsibilities at both agencies and it "just about killed [him]." In general, Meekin spent two days a week at DPS, two days at DOC, and one day at MNIT's central office. Meekin brought up "time and time again" to his leadership at MNIT that he was spread too thinly. In the fall of 2017, Meekin "finally said" that MNLARS was taking up too much of his time, and that he could not adequately serve the Department of Corrections. Meekin's

responsibilities at DOC ended in September 2017 when MNIT assigned [redacted] to serve as the agency's CBTO.

Meekin's appraisal of his performance with regard to MNLARS
Meekin asserts that he made the best decisions he could with regard to MNLARS given the information he had and the competing responsibilities that MNIT placed on him.

Meekin was dedicated to making MNLARS work and put in 20-hour days when necessary. Meekin exercised sound judgment in relying on both [redacted] leadership of the project and on the information [redacted] was supplying him. MNIT put [redacted] through a rigorous selection process before hiring [redacted] and [redacted] emerged as the best-qualified candidate. [redacted] represented that the MNLARS project was healthy and the available data points corroborated that view. When [redacted] discussed details with Meekin, [redacted] descriptions aligned with what he believed to be reality. Meekin received feedback from [redacted] and others, and they all gave positive reviews of [redacted]. In addition, DVS held demonstrations every two weeks of new functionalities; they worked great and the business side was pleased with the progress. [redacted] was impressed with [redacted] work and mentioned taking [redacted] around MNIT to show others how to work with Agile.

Meekin is aware that some place the blame for MNLARS's failings with him. Doing so is not fair because this was a government project with many layers of people involved in making and reviewing decisions. Meekin asserts that it is not possible for one person to "own" the failings in a project like this. Meekin acknowledges that MNLARS was released with "too many defects," but he does not bear any more responsibility for inadequate testing than any other managers or executives on the project. To the extent Meekin is responsible, it is only because "the buck stops" with him as the CBTO and not because of any failure on his part, especially in view of the many demands on his time. If Meekin erred at all, it was in not "taking a stand" earlier to shed his responsibilities for DOC so he could devote more attention to MNLARS.

MNIT did not give Meekin time to focus on MNLARS. He was instead directed to continue working at DPS to integrate divisions under one technology umbrella, and then was assigned additional responsibilities with DOC. The agencies within DPS are difficult to integrate because they have different missions and priorities. Meekin was trying to accomplish all those things while also "trying to run one of the largest, most visible projects in state government."

Meekin asserts that he received inadequate support from his superiors at MNIT for the MNLARS project in the following ways:

- MNIT leadership should have relieved Meekin from his duties at DOC earlier. Meekin stated he *should have* talked to [redacted] toward the end of 2016 about leaving the agency but did not do so. In the spring of 2017, Meekin talked to his leadership at MNIT. He explained he did not have enough time to devote to DOC and "genuinely asked" to be relieved of responsibility for the agency. MNIT responded that it preferred him to remain in both roles for a while. Toward the end of May or early June 2017, Meekin spoke with [redacted] about hiring someone to lead IT there.

- Meekin found it difficult to work [redacted] and was unable to provide accurate information about the project to the Governor's office.

- Others from MNIT leadership participated in conference calls after the MNLARS release about performance problems and slowdowns with the system. They should have picked up on the fact that the system needed more computing capacity but did not.

- The MNIT work environment was laden with unrealistic demands. The Legislature imposed demands on MNIT as to timeframes, costs, and resources that did not match reality. MNIT does not have the financial resources or depth of staff to develop sound processes, and as a result is unable to capably discharge its mission.

Overview of Meekin's history with MNLARS
When Meekin became the MNLARS Director in 2009, the CIO at Public Safety ordered him to secure a vendor to build the system. The State entered into a contract with HP in the spring of 2012. HP was not successful, and the contract was terminated in 2014.

By the time the contract terminated, Meekin had been promoted to CIO; [redacted] had become the MNLARS Director on the technology side, and [redacted] had become the MNLARS Director on the business side. In early 2015, [redacted] to take over the MNLARS technology work. Meekin's job as CIO was to provide [redacted] with overall guidance. The MNLARS charter specifies that Meekin and [redacted] were co-executive sponsors of MNLARS, and that [redacted] were responsible for actually building the system.

Hiring [redacted] Finalists for the position interviewed before a panel comprised of MNIT and DPS personnel and [redacted] did very well in the process. Meekin neither had nor voiced any reservations about hiring [redacted]

Meekin's and [redacted] different duties
Meekin's duties were executive in nature and did not include day-to-day management of MNLARS. [redacted] had charge of the MNLARS budget, hiring people, and managing everything encompassed by "the SAFe framework and methodology." [redacted], along with [redacted], had authority over all the system architecture and technology. Meekin had [redacted] to receive updates on the project. Meekin also sat in on monthly half-hour check-in meetings that [redacted] had with Sogeti. Meekin did not have any communications with anyone who reported to [redacted] In hindsight, Meekin is bemused that no one ever alerted him to any issues with the project.

Oversight of Meekin and MNLARS
[redacted] oversaw MNLARS while [redacted] supervised Meekin's other work. Meekin and [redacted] had check-in meetings with [redacted] on MNLARS every two weeks at first,

and later every three weeks. Those attending the check-ins included Meekin, [redacted] Meekin clarified that he was not reporting to [redacted] at these meetings. Rather, Meekin—like [redacted]—was *receiving* reports at these meetings from [redacted]

Meekin does not remember when, but [redacted] convened a meeting at some point to take a "deep dive" into the MNLARS architecture. [redacted] went through a list of questions and gleaned a detailed understanding of how the system was designed. Meekin does not recall [redacted] expressing any concerns about the "thickness" of the system's middle layer, but Meekin acknowledges the system was thick in the middle layer.

Working with DVS in the Agile framework

Before MNLARS, DVS had not built a major IT system in 30 years and no one from that division had the skill set to lead a large technology project. Their major responsibilities were to make decisions about priorities, and to make decisions toward the end of the development process to accept the system. Despite the division's shortcomings, Meekin committed himself to delivering MNLARS. Meekin spent a lot of time with [redacted] to help [redacted] along. [redacted] never developed a high degree of competence [redacted] work, but improved a lot over the course of the project.

The Agile development framework envisions that business people and developers will work together in real time to design and develop a new system. DVS did poorly at this. There were periodic two-day meetings to plan the next cycle of work. DVS staff were supposed to come to these meetings with descriptions of the business requirements to be implemented during the next cycle. They did not do so. The project ended up in "the worst possible situation" because software developers ended up making "guesses" on behalf of DVS staff to finalize the business requirements.

Meekin suggests that to the extent that end users were disappointed with MNLARS, it was because the people in DVS who were supposed to catch gaps and bugs in the system did not do so. There were 100 days of pre-launch check-ins, and nobody from the business side raised any concerns during that time about problems with the system.

Management and supervision of the MNLARS technical side

Meekin is critical of [redacted] for not hiring managers, but urges that [redacted] failure to do so did not contribute to problems with the quality of the software. Meekin had "been on [redacted] for a long time to hire managers but [redacted] never did." Meekin had to take over leadership of MNLARS when [redacted] because there was not a manager on hand to do so. Had [redacted] hired managers, they could have helped out with the tasks of hiring and firing people and developing contracts with other vendors, which contractors cannot do. With managers on board, [redacted] would have been able to focus on some of [redacted] duties outside of MNLARS, but instead [redacted] ended up spending 95% of [redacted] time on MNLARS.

Meekin reviewed the org chart that [redacted] drew by hand. He identified no major errors and agreed there were about 70 FTEs in the "Release Train." He estimates that up to 12 of them were State employees. [redacted], was a contractor and provided project

oversight. There were also scrum masters and architects providing oversight. One of the scrum masters (there were between four and seven) was a State employee. Meekin disagrees that it was problematic to have contractors supervising the work of other contractors. This criticism flows from failing to understand the difference between line supervision and project supervision. Meekin saw MNLARS as a "well-organized project environment. It's what's being done in the industry. [redacted] said he couldn't wait to do this in more places." The Agile/SAFe framework holds that this structure should result in programmers and developers receiving adequate guidance. [redacted] span of control was not too large because there were 12 or fewer state employees reporting to [redacted].

[redacted] was a State-employed manager on the technical side. [redacted] and that [redacted] did not move to replace [redacted] from several months. Meekin disputes [redacted] account that he caused delay in replacing [redacted] Meekin states it was not his job to add the funding strings to the paperwork for replacing [redacted], and that [redacted] never followed up with him on the issue.

Causation of software errors

Meekin acknowledges there were errors and inconsistencies in the software, but asserts they did not result from inadequate management or supervision. Rather, he learned later that [redacted] caused the errors by not enforcing decisions made by the project architects. [redacted] told the software developers that they should "solve problems" and that the architectural guidance they had received was not important.

Rollback was not an option

There was no viable option for reverting from MNLARS back to the old legacy system if MNLARS failed at launch. All of the data in the legacy system had to be converted into MNLARS. There was no feasible way to convert it backward; writing code to do that would have been monumentally costly. It was clearly communicated and understood by all that there were no plans for a rollback.

Audit reports and findings

Meekin worked with [redacted] to secure the services of SES, which examined project management and controls, risks, defects, and "everything short of code." Meekin admitted that he read the SES audit reports as they were submitted to the State. The investigator informed Meekin that:

- The SES audit reports, going back to the first quarterly report in December 2015, warned about the risk of running out of time to plan for and complete testing before MNLARS was released;
- The audit reports continued to report on this risk in June and December 2016;
- A March 2017 audit report elevated the lack of time for testing from a "risk" to a project issue.

Meekin dismissed the significance of the initial audit report by saying that initial software development audit reports routinely warn of the risk of running out of time for testing, because testing is the last step in the process and it "always gets shorted." Meekin discounted the later risk reports based on the information he was taking in at the meetings leading to the July 24 release: People were "genuinely enthusiastic" at the Go-live meeting; and the defect list showed less than 70 defects before the launch. "When we went live with [code version] 1.2, we had under 100 defects reported with the business. That's a low number in the industry."

Meekin was aware that SES had elevated the lack of time for testing from a risk to a project issue in March. [redacted] however, said the defect list was "on track" and that they were "good to go." It was up to the technical and business teams to alert Meekin if there were problems with testing and they did not do so, so Meekin assumed that MNLARS was adequately tested and ready for release.

Regression testing
The investigator informed Meekin about Sogeti's report of testing through November 9, 2017 and its statement that full regression testing was not allowed for a span of 10 to 12 weeks before the July 24 launch. The investigator further informed Meekin that Sogeti reported raising this concern to MNLARS management.

Meekin stated that he learned about the lack of testing later, but did not know about it before the release. Meekin does not deny that Sogeti brought this to his attention earlier, but he did not recall them doing so, and believes it would have jumped out "like a big red flag" if they had. Meekin was still relying on the project team before the release of Version 1.2. If he had been presented with concerns about a lack of testing, he would have gone back to [redacted] and others to consider it. Meekin himself would not send code out before it had been tested, and assumed that the code for Version 1.2 had in fact been tested.

Integration testing
The investigator asked Meekin to respond to criticisms that before the release of Version 1.2, MNLARS was only tested in components but not as an overall system. Meekin explained that "integration testing" examines the functionality between systems in a software environment. Problems with the functionality of Version 1.2 that surfaced after its release suggest that integration testing was not completed beforehand, although Meekin had no knowledge of this until later. Meekin assured that integration testing was performed before he allowed Version 1.10 to be released.

Load testing
Meekin understood that [redacted] caused something to be built on Amazon Web Services to subject MNLARS to load and test its performance before Version 1.2 was launched. Meekin explained that it is "super hard" to conduct performance testing; it should emulate the real world and most would agree that it is not possible to do so. Meekin believes that *after* Version 1.2 was released, Sogeti proposed creating a "full environment" for testing. Meekin was still negotiating with Sogeti over the costs and steps necessary for this work when he was placed on administrative leave.

User acceptance testing

Meekin asserted that UAT is the most critical kind of testing, and DVS was responsible for ensuring that MNLARS worked properly before agreeing to accept it. Meekin qualified this assertion by saying that with the Agile framework, they tried to set aside such rigid delineations of responsibility.

DVS did not adequately embrace their responsibilities for UAT. [redacted] reported to Meekin in late 2015 or early 2016 that DVS had said they did not know how to conduct UAT; Meekin responded by modifying the Sogeti contract to include additional testing, and management of the UAT process. Under the modification, Sogeti would work with DVS for 12 to 18 months to conduct UAT and train DVS in how to take over the process in the future. Adding this to the Sogeti contract maxed out to the work that could be assigned to them under State contracting rules, and Meekin informed DVS that they would have to be prepared to take over the work at the end of the contract.

Although the contract with Sogeti was maxed out, this did not have an impact on the testing that could be completed for the release of Version 1.2. Meekin understood the limitations on future use of Sogeti would be felt when the MNLARS team got to the point of testing driver services software at some future date.

Meekin expressed frustration to [redacted] that there was no one from DVS who actually understood some of the business processes, such as mail-in registrations, that were being included in MNLARS. This resulted in challenges in development and as well as testing. Meekin believes that DVS did not conduct adequate UAT because they believed that the quality assurance testing conducted on the technical side would be adequate.

Sogeti's input

Meekin recalls that [redacted] from Sogeti were at the final Go-live meeting for Version 1.2 and did not raise any concerns about testing. When Meekin took over day-to-day oversight and worked on Version 1.10, [redacted] were "at the table" as decisions were being made. Meekin added that Version 1.10 was their "best release from a defect standpoint – it was our most tested release." Meekin deferred the release in order to complete testing, and that version became the main branch of code that was used for future development.

Disappointments with [redacted]

Meekin feels [redacted] let him down and he is disappointed in [redacted] After the MNLARS launch in July, "there were a lot of surprises when problems started surfacing." [redacted] kept saying that the situation was normal and the problems were to be expected. After [redacted] made one such statement, [redacted] expressed that things were not going well and Meekin agreed. Meekin wonders if [redacted] because [redacted] anticipated problems that [redacted] did not disclose to Meekin. Meekin relied on what [redacted] told him during the project. Later, [redacted] shared with Meekin that [redacted] had "fooled [him] too."

The "thick" part of the system architecture is disappointing. [redacted] designed the system and authorized the use of Microsoft Entity Framework, which automates some computer-programming tasks. It works great on smaller systems, but not on systems the size of MNLARS, and using it was a bad decision that "sucked up a lot of [computing] power" when the system went live. Meekin assumed that [redacted] would have informed him of a decision like this, but [redacted] did not do so.

[redacted]
Meekin surmises that [redacted] was probably aware of problems with DVS's level of engagement on the project but did not report it to Meekin. When Meekin returned to his office after the Go/No-go meeting in April, he found [redacted] Meekin is at a loss to understand why [redacted]; it should have been "the happiest day of the project." [redacted] explained [redacted] by saying [redacted] had finished what [redacted] came to do.

Meekin talked [redacted] through the launch of Version 1.2, and talked to [redacted] again after that and convinced [redacted]. However, [redacted] that Meekin started taking over day-to-day leadership of the project. As of [redacted] and Meekin did not want the staff to experience the "whiplash" of putting [redacted] Meekin told [redacted] was no longer to make decisions on the project. This discussion coincided with Meekin's statement to the Commissioner's Office that he needed to be relieved of his responsibilities at the Department of Corrections. [redacted]

Delay in hiring [redacted]
Meekin agreed that [redacted] Meekin acknowledges that there was a gap between when [redacted] and when he started working to fill the vacancy created by [redacted] departure. Meekin's only explanation for the gap was that his efforts to hire [redacted] "got delayed" and that hiring is difficult. Meekin submitted a position description to Human Resources to replace [redacted] and was in the process of making an offer to a candidate on November 9, 2017 when he was placed on investigatory leave.

[redacted]

Staffing table
Meekin acknowledges that SES asked to see a staffing table that showed gaps in project staffing. Meekin maintains that there was in fact a staffing spreadsheet and that SES reviewed it on a regular basis.

Expectations and communications about timing
The Rally system was used to track the work planned for MNLARS and when it would be completed. It was up to the business side to communicate information out of Rally to stakeholders who wanted to know when they could expect MNLARS to be delivered.

Aloofness to details
The investigator informed Meekin that others had observed him preferring to be at the "20,000 foot level" and reluctant to dive into the details. Meekin did not disagree with the observation but explained instead that he was spread very thinly with all of his responsibilities and only had so much time. He also indicated that he has a "strong philosophy" that others sometime disagreed with—that he would not do others' jobs for them. If a subordinate asked Meekin a question, he might tell the subordinate that it was his or her job to figure out the answer.

Perception of deference
The investigator informed Meekin of others' observation that he seemed to be overly deferential and would not review decisions. Meekin did not disagree with the observation. Instead, he explained that he was hesitant to override any decisions that made. He believed that doing so would undermine authority as a manager.

Issues with BCA
and Meekin had a "very big" business disagreement with the BCA over the use of production data for testing. Meekin attended meetings with and the BCA in an attempt to find a resolution. In the end, MNLARS provided the BCA with production data for testing.

" with the BCA personnel and expressed feeling that they were being unreasonable. However,
Meekin feels this is typical of how the BCA responds—they adamantly demand things, and when they don't get their way, they complain that they are not being heard. Meekin declined to become involved in some of these disagreements because they involved discrete details; he responded by saying, "You guys gotta go figure that out."

After MNLARS went live, the BCA complained for the first week or so about data errors that resulted from a "small piece of code that needed to be changed." There were 20 people participating in the phone conferences that were held after the release. Meekin spoke to the complaining individual, in a separate conversation. Meekin explained that they had much more pressing issues to deal with from the system perspective, and asked if they could come back to that problem. This deescalated the situation and seemed to resolve it.

Defect repair and hands-on involvement
Following the July 24 launch, was doing "fast turnarounds" on new releases to deal with defects. It was "very scary" because there was only time for "minimally acceptable testing" and they did not have many automated test scripts. They went through a three-week cycle of "write the code—test it—deploy it."

Around the beginning of September, Meekin became frustrated with the way that [redacted] was prioritizing work and took a hands-on role with defect management. [redacted] was still directing the team, but Meekin was setting priorities. Around the middle of September, [redacted] and Meekin went "downstairs" to the production floor and started "digging in" with the teams. The project architects expressed frustration that [redacted] had been overriding their architectural recommendations. Meekin appointed [redacted] as the chief architect, which had been [redacted]. Meekin began disaggregating and reassigning [redacted] duties. Meekin "empowered the teams" and they fell into a good rhythm. Meekin told [redacted] not to make decisions about the project after [redacted].

With Meekin at the helm of the development teams, they quit doing code releases for about three weeks in order to ensure that Version 1.10 was of sufficient quality before it went out. [redacted] was "frustrated beyond belief" by the decision to slow down the pace of releases to focus on quality, but Meekin wanted to ensure they did not regress the system. There were a couple of times after the release of Version 1.10.1 that they had to do emergency fixes over the lunch hour. These repairs were "laser-focused on one issue." The decision to execute rapid repairs resulted from a deliberate balancing of risks, and there was still a minimal level of testing.

[redacted]

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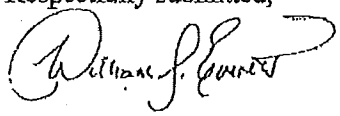
STATEMENT OF SUBMISSION

The investigator deems this investigation to be complete with the submission of this report. Authorized officials of Minnesota IT Services may contact the investigator for additional details or clarification.

Dated: February 8, 2018

Respectfully submitted,



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