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Bill 3 Report Draft #3

Over the past few decades, growth and development in the information technology (IT) industry has created a situation in which almost all human activity involves the use of a computer system. Whether it is a trip to the grocery store, where everything you purchase is recorded in a P.O.S. system, a stroll down the block, where a traffic camera might be counting pedestrians, or a relaxing session of television, where every show you watch is recorded to track preference, information technology systems are all around us.

Information technology plays an essential role in government operations, on all levels. Military and law enforcement operations depend on the ability to communicate quickly and access information anywhere around the world. On the state level, the Department of Motor Vehicles relies on the ability to quickly access records, manipulate information, and save the record back into the system. In the state of Colorado, these IT systems are managed and maintained through the Office of *Information Technology*, or "computer-based equipment and related services designed for the storage, manipulation, and retrieval of data by electronic and mechanical means" (CRS 2-3-1702).

The Office of Information Technology (OIT) works in conjunction with the Joint Technology Committee to facilitate technology related policies. The Joint Technology Committee is responsible for general oversight of the state of information technology in Colorado, notably, oversight of all *major* technology projects (JTC, pg. 2). The decisions made in this committee are highly correlated with overall state expenditures on technology-related projects.

SB19-169 is currently on the docket and addresses certain budget and management requirements for technology projects in the State. This bill specifically applies to major information technology budget requests forecasted to cost at least $1 million. For these budget requests, SB19-169 will require additional reporting and use of new software, ultimately looking to increase efficiency of major tech-related projects submitted to the Joint Technology Committee for budget approval (SB19-169).

On a national level, the U.S. government spends trillions of annual expenditures on information technology projects, mainly for development of existing systems (Guidry, Pg. 363). However, when it comes to large-scale information system development, government agencies, as well as private entities, have an extensive track record of failure.

Among the failed projects is the original attempt to build Healthcare.gov. Multiple contractors worked on developing the complex software, making the project very difficult to manage, ultimately far surpassing the original $93 million budget and failing to meet requirements (Thibodeau).

In fact, recent studies have shown that only 6% of all government or privately organized major IT projects succeeded, and projects in Colorado are no exception to this trend (Thibodeau). One notable IT project failure in Colorado was the development of the baggage handling system at Denver International Airport. This project was initiated in the early 1990s during construction of the new airport in order to handle the massive amount of luggage that would be passing through terminals on a daily basis.

A series of poor management decisions and underestimation of the effort involved lead to the ultimate failure of the project, including the decision to change strategies after project initiation. Before choosing a contractor, the Denver Airport project management team developed

a plan for the project anticipating that individual airlines would handle their own bags. Once work developing the system had begun, it became apparent that the airport needed centralized control of all bags, leading to a strategy change that represents inadequate project planning. Though DIA eventually opened in February of 1995, 16 months behind schedule, the baggage system never met expectations and was eventually scrapped 10 years later (Calleam Consulting).

SB19-169 looks to increase the overall efficiency of major tech-related projects submitted to the Joint Technology Committee for budget approval. It will do so by requiring contractors to use qualified software that verifies billable hours, store the data that verifies the billable hours for seven years after final payment, and include a written business case and change management plan with the budget submission ("Fiscal Note", pg. 2).

By requiring additional planning on the forefront, major IT projects can operate more efficiency once they begin. The business case is a formal report outlining the reason for a project based on its predicted overall benefit. Change management plans identify clear contingencies to deal with various changes that might occur throughout the course of the project. With these additional requirements, SB19-169 will look to increase accountability for contractors involved in publicly funded IT projects.

It is imperative that available public funding is allocated in the most efficient way possible. Ongoing maintenance and development is required to keep IT systems online and functioning. However, the question is whether the government can make use of IT funding in the most efficient way as, by nature, the government is not subject to competitive pressures.

In the private market, IT projects are a result of market competition. For a private company, future profits may be entirely dependent on the success of an IT project. After pouring substantial funding into system development, many private companies cannot afford to see those

efforts fail. On the other hand, public policy decisions regarding IT can often be motivated by external political factors. Looking to appear ambitious, many politicians unfortunately support unachievable IT project knowing that once out of office, they are no longer accountable for problems that may arise as a result (Yaraghi).

However, due to the increase in project management competence and accountability associated with the requirements of SB19-169, I recommend that some version of the bill be passed. Studies have proven private companies are just as unsuccessful in facilitating large IT project. Consequently, a solution to this issue does not depend on which market to conduct IT projects, rather how the projects are conducted within the market. Some promising solutions that have proven to work in both the private and public sector are reduction in project size, redirection of responsibilities to another party, and dissolution, when necessary (Guidry, Pg. 368-373).

After tremendous failure of the original attempt to build Healthcare.gov, public officials motioned to redirect responsibilities of the project to another contractor. With fresh eyes on the project, the new contractor was more experienced with the issues at hand and was able to successfully repair the site to meet original performance requirements (Guidry, Pg. 368-369). Had the original project management plan clearly outlined a contingency to redirect or even dissolve in the event of failure to meet expectations, the federal government may have saved millions of dollars in wasted funds.

Larger projects are 10 times more likely to fail compared to smaller projects (Guidry, Pg. 370). In the case of DIA's baggage handling system, a virtually impossible goal was defined, setting the project up for failure from the beginning. System integration on such a large scale had never been seen before, and similar smaller projects had taken at least two years to complete.

With a two year deadline to accomplish something that had never been done before, the contractor still accepted the work, inevitably missed deadlines and went way over budget. A review of project scope prior to initiation might have illustrated the lack of time allotted to achieve the expectations, demanded some reduction of project scope, and potentially allowed the contractor to spend the proper amount of time to successfully complete the project.

 As discussed, information technology is a major public asset, which justifies why ongoing research and software development efforts are necessary. Though SB19-169 looks to increase IT project success rates, additional language to limit project size and require redirection, when necessary, can further improve the scope of this bill. SB19-169 provides a valuable change to the IT project market and, while improvements can be made, this bill belongs on the 2019 docket.

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