Interim Report

to the 84th Legislature

House Committee on Technology

December 2014

HOUSE COMMITTEE ON TECHNOLOGY
TEXAS HOUSE OF REPRESENTATIVES
INTERIM REPORT 2014

A REPORT TO THE
HOUSE OF REPRESENTATIVES
84TH TEXAS LEGISLATURE

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Committee On
Technology

December 1, 2014

Gary Elkins
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P.O. Box 2910
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The Honorable Joe Straus
Speaker, Texas House of Representatives
Members of the Texas House of Representatives
Texas State Capitol, Rm. 2W.13
Austin, Texas 78701

Dear Mr. Speaker and Fellow Members:

The Committee on Technology of the Eighty-third Legislature hereby submits its interim report including recommendations and drafted legislation for consideration by the Eighty-fourth Legislature.

Respectfully submitted,

Gary Elkins

Angie Chen Button

Pat Fallon

Larry Gonzales

Ron Reynolds

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INTRODUCTION

At the beginning of the 83rd Legislature, the Honorable Joe Straus, Speaker of the Texas House of Representatives, appointed five members to the House Committee on Technology. The Committee membership included the following: Gary Elkins, Chairman; Angie Chen Button, Vice Chair; Pat Fallon, Larry Gonzales and Ron Reynolds.

The committee was given jurisdiction over all matters pertaining to:

- Advances in science and technology, including in telecommunications, electronic technology, and automated data processing;

- the promotion of scientific research, technological development, and technology transfer in the state;

- matters relating to cooperation of state and local governments with the scientific and technological community, including industry, institutions of higher education, and federal governmental laboratories; and

- the Texas Emerging Technology Advisory Committee.

INTERIM STUDY CHARGES

- Study the current laws, rules, and processes in place for the Department of Information Resources' Cooperative Contracts and recommend improvements to the 84th Legislature. (Joint charge with the House Committee on Government Efficiency and Reform)

- Examine the public's accessibility to government services and agencies through the use of mobile applications and online services. (Joint charge with the House Committee on Government Efficiency and Reform)

- Study the feasibility of an integrated identity management program (IIMP) for state agencies. Examine best practices in the deployment of technology to safeguard state data and programs, limit fraudulent or unauthorized access to state hardware and software, and develop a secure state digital infrastructure. Determine potential savings to the state and make further recommendations on the implementation of IIMP that encompass both logical and physical security.

- Study whether abuses in the patent system interfere with the goal of expanded opportunity and innovation for Texas businesses and whether actions by the state can address any such abuses.

- Evaluate Texas's competitiveness with other states in recruiting and cultivating the software industry, including entertainment software; fostering economic development; and creating potential new jobs. Examine current incentives and regulations and whether these assist or hinder the expansion of the entertainment software industry in Texas.

- Review state regulatory and tax policy to ensure that investment in technology infrastructure, goods, and services is unfettered and that Texas is able to capitalize on innovation to fuel additional job growth, business expansion, and investment. (Joint charge with the House Committee on Ways and Means)

- Monitor and review the efforts of the Department of Transportation’s (TxDOT) Texas Technology Task Force (TTTF). The TTTF shall study emerging transportation, communication, and computing technologies and determine physical infrastructure and system components that TxDOT or other state departments would need to provide to enable selected technologies. The task is to be completed by TTTF as directed by SB 1 (83R), item 44, Article VII-31. (Joint charge with the House Committee on Transportation)

COOPERATIVE CONTRACTS

BACKGROUND

The Department of Information Resources (DIR) provides statewide oversight and support for management of government information and communications technology. The agency was created in 1989 when the Texas Legislature passed the Information Resources Management Act, found in Chapter 2054 of the Texas Government Code. Since that time, the scope of responsibilities for the Department has increased.[1]

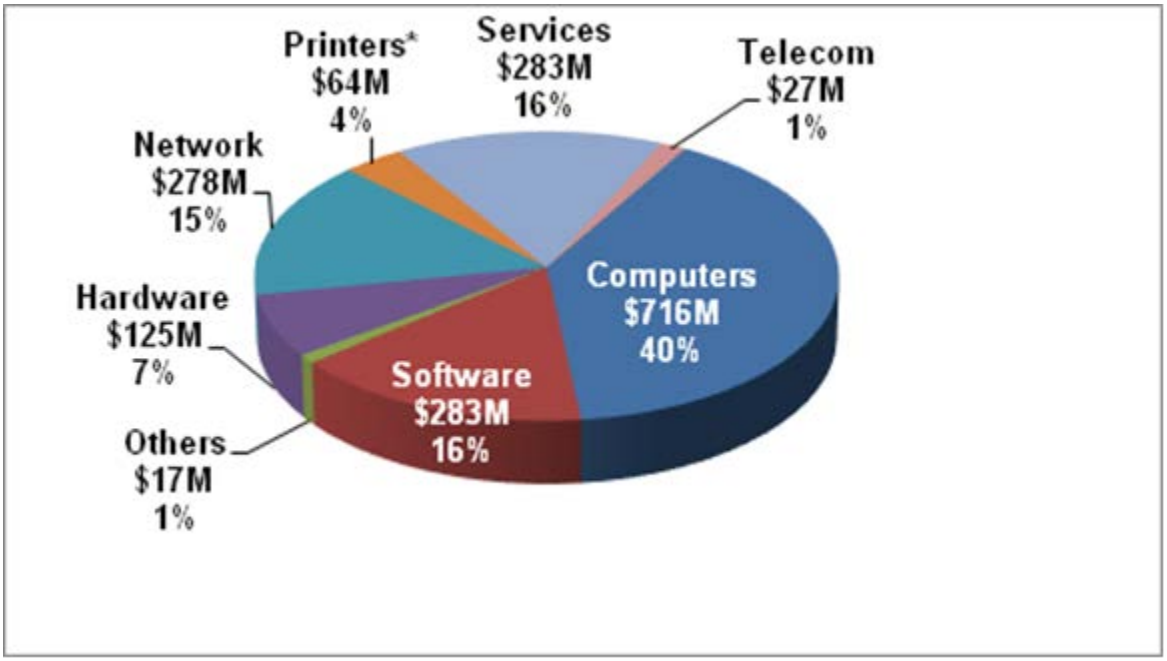
One of the main duties of DIR is the Cooperative Contracts program that was implemented with the intent to save taxpayer money by leveraging the state's volume-buying power to drive down costs. The Cooperative Contracts program within DIR was created with the passage of HB 1516 (79R). This bill requires state agencies to buy information technology (IT) commodity items, from DIR contracts, unless the agency obtains an exemption from DIR.[2] In addition HB 1516 allowed DIR to add a 2% service fee to all products and services purchased through its contracts.[3] During the same legislative session DIR's general revenue funding was eliminated. The idea was for DIR to become self-funded through the program. In addition the definition of commodity item was changed to include all technology products and services.

IT commodity items (products and services) have been defined in the Texas Administrative Code, Chapter 212. IT commodity items are commercially available software, hardware and technology services that are generally available to businesses or the public and for which DIR determines that a reasonable demand exists in two or more state agencies.[4] Currently, over 750 IT commodity contracts are in place for products and services, including computers, software, security hardware and software, networking equipment, telecommunications equipment, IT staffing services, and technology-based training.[5]

DIR, through its Cooperative Contracts Program, is to assist state agencies and local governments with cost-effective acquisition of information resources by negotiating, managing, and administering contracts with information technology providers.[6] DIR has executed more than 750 technology contracts through the cooperative purchasing program. In FY 2009, the program had over $1.3 billion in sales generating more than $171 million in taxpayer savings.[7] The Cooperative Contracts program generated approximately $300 million in cost savings in FY2013.

However, the State Auditor performed an audit of this program in FY 13 (and issued in FY 14) that identified numerous areas of concern within the program. Many of the issues stemmed from the extreme growth of the program. In addition to the growth of the program the number of staff supporting the program has decreased. The concern stemmed from a lack of oversight regarding the program, and whether Texas was getting the best value on its technology purchases. The State Auditor specifically recommended improvements be made in the areas of contract procurement, contract monitoring, determining statewide needs, cost-savings calculations, and information technology.

FY2013 Purchases by Product Total Purchases $1.79 Billion[8]



INTERIM COMMITTEE HEARING

On Wednesday, May 21, the House Committee on Government Efficiency & Reform and the House Committee on Technology met in a joint public hearing in Austin to consider the Interim Charge :

> Study the current laws, rules, and processes in place for the Department of Information Resources' Cooperative Contracts and recommend improvements to the 84th Legislature.

The committee heard testimony from the following: Ileana Barboza, State Auditor's Office; Mary Cheryl Dorwart, Department of Information Resources; and Cesar Saldivar, State Auditor's Office.

During the hearing the State Auditor's Office reiterated its findings regarding DIR's Cooperative Contracts program.[9]

Contract Procurement[10]

- DIR should require vendors to specify the manufacturer's suggested retail price (MSRP) at the time of negotiation, and include in its contracts either the MSRP amount or a not-to exceed price to ensure that customers obtain best value.

- Include in Program contracts volume discounts that increase as total statewide aggregate purchases increase to ensure that the Program benefits both small and large customers.

Statewide Needs[11]

- DIR should review its exemption request log and determine whether requesting more specific information would enable the Department to identify the need to establish new Program contracts. The Department should also look into whether an electronic exemption request process would be useful.

- The Department should require state agencies to prepare and submit procurement schedules for information technology commodities they are planning to purchase in a prescribed format that the Department can use to identify statewide needs and establish new Program contracts.

- DIR should review biennial operating plans to identify proposed information technology projects for which the Department could establish new Program contracts.

Contract Monitoring[12]

- The Department needs to establish a process to regularly verify the completeness and accuracy of monthly sales reports that Program vendors submit to ensure that it has reliable sales data to assess and set Program administrative fee rates, determine the correct amount of administrative fees it should collect, and calculate and report Program cost savings.

- Restore its policies and procedures that require contract managers to monitor whether vendors provide customers the discounts specified in their Program contracts.

Program Cost Savings[13]

- DIR needs to seek guidance and work with the Legislative Budget Board to update, implement, and follow an agreed-upon methodology for calculating Program cost savings for all contracts.

Information Technology[14]

- The Department should improve user access and password controls to its Program contract data to minimize the risk of unauthorized access and changes to Program data.

- Ensure that its internal password policies comply with the requirements in Title 1, Texas Administrative Code, Chapter 202, and the password guidelines for state agencies on the Department's Web site.

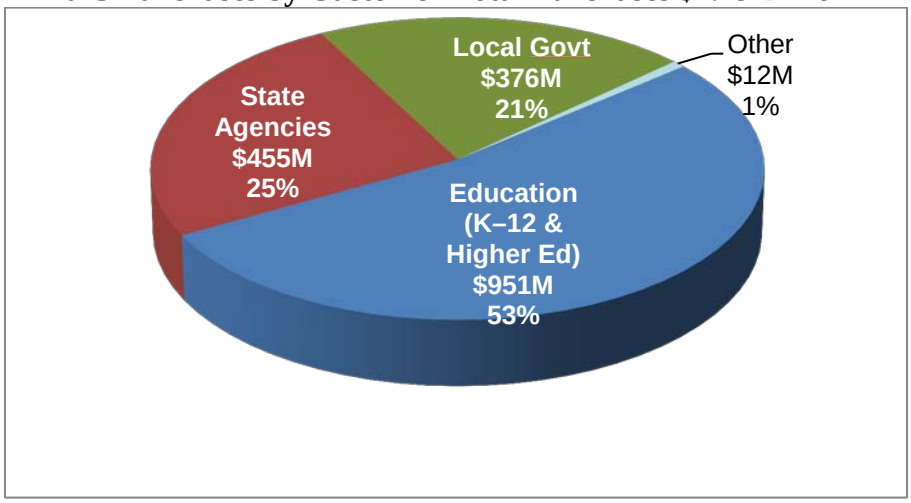
- Establish a quality assurance process to verify the completeness and accuracy of contract data, and ensure that it uses and reports reliable information to decision makers.

DIR recommends expanding its customer base. The Department believes that the entities that could potentially benefit from the cooperative contracts program include:

- "Quasi" state agencies, such as the Electric Reliability Council of Texas (ERCOT)
- Private schools K-12
- Private Universities Private hospitals
- Volunteer fire departments
- Libraries

DIR's current customer base is divided as follows:

FY2013 Purchases by Customer Total Purchases $1.79 Billion[15]



FINDINGS AND RECOMMENDATIONS

The Committee found that DIR has made great strides in implementing the State Auditor's recommendations. Additionally, the Department has self-reported the implementation of the following cooperative contracts enhancements:[16]

1. Procurement Coordination Committee established and began meeting to adhere to the Sunset recommendation to have Comptroller's office and DIR work together to align processes where appropriate.

2. Conducted a bulk purchase of computers for designated agencies as per the Rider (SB 1, Rider 9.04).

3. Instituted contracting reporting to the DIR Board. At the quarterly meeting, the Technology Sourcing Office reports current contracts greater than $100,000 to the Board.

4. Established Board Subcommittee for Cooperative Contract and HUB Compliance Subcommittee to provide direction to DIR and give the Board greater visibility into DIR processes related to the programs.

5. Implemented additional contract staff training (i.e. cost avoidance, terms and conditions)

6. Initiated compliance audits of the cooperative contract purchases and the administrative fees to validate vendor reporting compliance.

7. Contract and Vendor Management instituted processes to insure that CTCM and CTPM certifications were obtained for all contract managers.

8. Initiated a realignment of Contract and Vendor Management staff to enhance continuity and develop team concept expertise for hardware, software and services.

9. Added TEX-AN deliverables into salesforce application to enhance contract monitoring of required deliverables.

10. Added webinars to the pre-bid vendor conference to allow increased participation by out-of-town vendors.

11. Instituted a debriefing process so that vendors who have been disqualified or did not receive an Invitation to Negotiate, can contact DIR to obtain feedback about offer including scoring.

12. Implemented IT SOURCING. This is an email announcement list for government personnel interested in Contracts and Sourcing related to Information Technology

The committee finds that DIR should continue to implement the State Auditor's Office suggestions to better monitor and meet the needs of its customers and expand the customer base for Cooperative Contracts to include, among others, libraries, private K-12 schools, universities and hospitals, and quasi state agencies such as the Electric Reliability Council of Texas (ERCOT)

MOBILE APPLICATIONS

BACKGROUND

Mobile devices have changed the way Americans access information. The prevalence of these devices has completely changed the way the internet is utilized. Smartphones and tablets account for 55% of internet activity.[17] This number is only expected to grow. Fifty eight percent (58%) of Americans have a smartphone. Mobile devices currently outsell personal computers two to one.[18]

Increasingly many Texans want to be able to accomplish their government interactions anytime, from anywhere through their computers and mobile devices. State agencies will need to provide mobile device access to information and services in order to continue to reach this digital community.

Citizens want access to state government information and services in person, over the phone, and over a mobile device such as a smartphone or tablet. They want the information to be clear and consistent no matter how it is accessed; they want services such as license renewal and certificates of birth and death to be easy to understand and purchase; and they want confidence that their interactions are secure.

While for many people nothing will replace or improve upon a face-to-face conversation and transaction with state agency personnel, increasingly many Texans want to be able to accomplish their government interactions anytime, from anywhere through their computers and mobile devices. As smartphones and tablets become the public's preferred means of accessing the internet, state agencies will need to provide mobile device access to information and services in order to continue to reach this digital community.

The answer in some cases is to build or convert state agency information and services into mobile applications or "apps". A mobile app is a tool that helps a person accomplish a task or find information. Apps are designed to work on a mobile phone. Some need to be downloaded to the phone while others can be accessed using the phone's web browser. While this method of delivering services to the mobile citizenry may be the one that immediately comes to mind, it is not always necessary or warranted.

Another way mobile content can be provided is through responsive design. Responsive design is a web design approach that renders content across multiple device types. While mobile apps are distributed through an app store often at a small price, responsive design detects device type automatically, rendering functionality tailored to each device. Responsive design is built into web pages, costs the user nothing, and does not need to be purchased or updated.

Responsive design is not the only method of providing online mobile services. In some cases, agencies have created a separate, mobile-enabled version of their website that is specific for mobile devices. This approach may be warranted in certain cases, especially where there is a complex desktop version of the website already in production. The drawback to this approach is that it requires maintenance of two separate applications.

Agencies need criteria to guide them towards the best and most efficient mobile strategy that meets the needs of their business and customers. Agencies that effectively deliver over mobile channels have also taken these factors into consideration:

- Smaller screens mean content must be clear and direct;
- Ease of navigation and easily tapped icons improves the mobile experience for everyone; and
- Enhanced information architecture is critical to the speed and ease with which online transactions can be conducted securely.

In order to best serve the citizens of Texas, agencies must now adapt with the influx of mobile users. While the traditional PC access to agency websites still exists, in order to reach the greatest number of people, and make access easiest Texas should focus on mobile applications and mobile friendly websites.

Texas.gov, the State's official website, provides portal and payment services for over 50 Texas state agencies and for other governmental customers to cost-effectively conduct business online with their constituents. Texans renew their vehicle registrations; get birth, death, and marriage certifications; and renew licenses for occupations, facilities, hunting, driving, and concealed handguns on Texas.gov.

The payment services provided through Texas.gov and 23 Texas.gov applications were optimized for mobile use in 2013, including the Department of Public Safety's driver license/ID renewal, Board of Nursing nurse license renewal, City of Mesquite utility bill pay, and the Texas Veterans Portal. When a mobile device such as a smartphone or tablet loads m.texas.gov or www.texas.gov, the portal displays a single column with large, descriptive icons that are easy to tap. Most transactions available through the portal can be completed on mobile devices.

INTERIM COMMITTEE HEARING

On Wednesday, May 21, the House Committee on Government Efficiency & Reform and the House Committee on Technology met in a joint public hearing in Austin to consider the following Interim Charge:

> Examine the public's accessibility to government services and agencies through the use of mobile applications and online services.

The Committee heard testimony from the following: Janet Gilmore, Texas Department of Information Resources; Sherri Greenberg; Bowden Hight, Health and Human Services Commission; Matthew Hudson, State Representative Florida House of Representatives; Joanne Salazar, and Mark Smith, Texas State Library and Archives Commission.

DIR recommends matching the agency's specific needs to determine the best way to get the information out to the public.[19] Understanding the differences in options is helpful in determining which service is best. Apps are designed to work on a mobile phone. Some need to be downloaded to the phone while others can be accessed using the phone's web browser.[20]

Another way mobile content can be provided is through responsive design. Responsive design detects device type automatically, rendering functionality tailored to each device. It is a web design approach that renders content across multiple device types. Responsive design is built into web pages, costs the user nothing, and does not need to be purchased or updated.[21]

Others may need a Mobile-enabled version of their website that is specific for mobile devices. This approach may be warranted in certain cases, especially where there is a complex desktop version of the website already in production. The drawback to this approach is that it requires maintenance of two separate applications.[22]

The Texas State Library and Archives Commission currently ensures the public's access to government services through the use of online services. Currently through the TexShare and K-12 database TSLAC provides:[23]

- Access to online content via TexShare and K-12 database programs.
- Assistance to libraries in obtaining E-Rate discounts for telecommunications services.
- Efforts to manage archival state documents in electronic format, an urgently needed project that will save taxpayers money while achieving greater transparency of state government.

The Health and Human Services (HHS) System supports a number of online resources for HHS staff, clients, providers, stakeholders, and the general public. HHSC focuses on the user and need to define its online resources.[24] Information on health and human services is available on HHS agency sites. Agency websites include information on regulated services or licensed providers. A number of HHS agency websites maintain secure modules that allow HHS employees, contractors and the public to report certain incidents.[25]

The HHS System has begun to explore the use of mobile applications to further serve HHS clients, stakeholders and the general public. In March 2014, HHSC released a Texas Veterans App. This app gives U.S. military veterans free, direct access to the national Veterans' Crisis Line and Hotline for Women Veterans, as well as the Texas Military Veteran Peer Network and Texas Veterans Portal. The "Connect with Texas Veterans" option provides a number for users to call and request help with connecting to other veterans within their geographical area of Texas. The system will continue to evaluate the opportunity for mobile applications to enhance health and human services.[26]

The Florida House of Representatives released a mobile app in 2013 that allows the user to access information related to the members and committees. Users can access the House Calendar and look up bills. It also allows users to stream video and access a variety of helpful directories.[27]

FINDINGS AND RECOMMENDATIONS

The Committee found that a number of steps have been taken to increase access to information through mobile phones and tablets. In order to best discern which option is best, agencies should establish criteria to assess both the need and demand for a mobile friendly version. They should develop criteria to determine which option would be best for their potential users. Agencies that effectively deliver over mobile channels have taken these factors into consideration:

- Smaller screens mean content must be clear and direct;
- Ease of navigation and easily tapped icons improves the mobile experience for everyone; and
- Enhanced information architecture is critical to the speed and ease with which online transactions can be conducted securely.

Further, the Committee finds that agencies should continue to strive to provide better access to their services through mobile apps. Agencies should look to the Department of Information Resources for assistance as they make this move. As agencies make their information and services mobile ready, they will need to consider:

- demographics,
- frequency and recurrence of use,
- immediacy and urgency of use,
- potential level of automation, and
- relevance of location information for service delivery.

Given the trend toward use of mobile devices as the primary connection tool for the internet, agencies may need:

1. Guidance on when, what, and how to develop mobile apps and online mobile services;
2. Resources to upgrade, create, or modify applications and mobile online services; and
3. Shared services which are already mobile-enabled, such as Texas.gov payment service applications.

DIR can offer tools to support agencies in these decision-making processes in addition to access to strategically bid contracts with businesses to implement those decisions. Agencies should seek guidance and technical support from DIR to achieve a smooth transition to mobile applications.

INTEGRATED IDENTITY MANAGEMENT PROGRAM

BACKGROUND

Identity Management is a set of practices that enables the right individuals to access the right resources, for a defined and approved time, only for the specific and appropriate purpose that has been authorized. Identity and Access Management (IAM) is a key component of an identity management program.[28]

IAM solutions for Texas agencies can include state employees and contract personnel that access resources to provide or support citizen services as well as citizens using state resources for services. IAM programs are typically limited to specific applications within an agency, and are designed for the limited purpose of controlling access for an individual only within the context of the single application's purpose.

Integrated Identity Management is the inclusion of both physical resources as well as logical or digital resources for consideration by the IAM solution. Integrated Identity Management often uses a card or identification badge that can be used to gain access to physical resources, like a building, while also used to access digital resources, like a computer.

Authentication verifies who a person is and authorization verifies what an individual is allowed to access. Authentication of identity uses the unique attributes of a person such as fingerprints, retinal eye patterns, and DNA. Characteristics used to distinguish individuals in a digital world typically include data such as their name, date of birth, social security number, email address or assigned usernames.

Authorization is the process of determining, by evaluating applicable access control information, whether a person is allowed to have the specified types of access to a particular resource. Once a subject is authenticated, the individual may be authorized to have different types of access.

IAM can enhance customer service by providing faster access configuration, reduced complexity for access, and reduced numbers of credentials for end users. An IAM solution can be used to increase security and enhance privacy.

Identity and Access Management solutions can streamline the process for obtaining approvals and facilitating account provisioning process efficiencies. These improvements provide users of systems the ability to gain access to systems in less time, enabling them to be productive more quickly. Additionally, similar efficiencies are gained in the deprovisioning process when a user leaves an organization or no longer requires access. Prompt removal of terminated users or users that have changed roles and no longer require access reduces risks of unauthorized access.

Users of systems that utilize IAM are provided benefits that include a simpler request process to access resources, less usernames and passwords to remember, and a reduction in the amount of time that it takes to get access to needed resources. These benefits apply to state employees and contractors as well as citizens when the systems they utilize include IAM.

INTERIM COMMITTEE HEARING

On Wednesday, May 21, the House Committee on Technology met in a public hearing in Austin to consider Interim Charge #3:

> Study the feasibility of an integrated identity management program (IIMP) for state agencies. Examine best practices in the deployment of technology to safeguard state data and programs, limit fraudulent or unauthorized access to state hardware and software, and develop a secure state digital infrastructure. Determine potential savings to the state and make further recommendations on the implementation of IIMP that encompass both logical and physical security.

The committee heard testimony from the following: Dr. Suzanne Barber, UT Center for Identity; Mr. Brian Engle, Department of Information Resources; Mr. Bowden Hight, Health and Human Services Commission; Mr. Steven McCraw, Texas Department of Public Safety and Mr. Neville Pattinson, Smart Card Alliance.

Dr. Suzanne Barber delivered a wide-lens perspective for a state Integrated Identity Management Program (IIMP) encompassing best practices and technology for the committee to consider. Specifically, she recommended a state IIMP architecture that distinctly separates the two main functions of identity management: authentication and authorization.

In Texas, these two functions exist together in silos in each state agency. Although each state agency must authorize access to the products and services for which they are responsible, replication of authentication is not required. Authentication replication is costly and risky.

Dr. Barber suggested that authentication should be performed once or periodically per individual or entity but not replicated. Once an identity is verified, then other agencies can use this confirmation of identity to perform their core competency -- which is determining authorizations and issuing associated credentials related to their products and services.

Dr. Barber testified that technology investments in one best of class authentication agency avoids replicating those investments. Without a system in place to establish one authenticated identity for each respective person, business or agency conducting transactions with the state, catching instances of fraud is very difficult. As of June 2013, Texas ranks 4th in the nation for the highest rate of reported cases of ID theft, with 130.3 victims per 100,000 people.

Replication is inconvenient. Keeping authentication in silos at each agency means that not only does everyone doing business with the state pay a price of inconvenience by going through the authentication process for every agency, the authorization process can be much less efficient and the state misses out on opportunities to better serve.

Smart cards are one option to promote interoperability, response to change, and security. The smart card can be issued based on one authenticated identity, modified to hold multiple, and always current authorizations. Remote modification is important to permit real-time changes.

Mr. Brian Engle, Department of Information Resources, gave the committee an overview of IAM and IIMP. The background information for this charge is mostly attributed to his testimony to the committee. In his testimony, Mr. Engle corroborated Dr. Barber's testimony by stating that Identity and Access Management challenges are the result of standalone solutions that have been assembled within silos of organizations over the course of time. Often, new solutions only consider the needs present within the current project, or are funded to only provide a solution for the present application. Projects that would provide the ability to consolidate IAM solutions have significant upfront costs and long timelines to achieve a positive return on the investment.

According to his testimony, Federated identity approaches are often used in decentralized environments. A federated approach is one where a collection of organizations engage in trust relationships, but handle IAM internally within each organization. In a federated model, a user authenticates to systems defined within their own organization, and then is able to access resources in other organizations based upon a trust model. Federation is established using open industry standards that help achieve interoperability across numerous technology platforms. For Texas agencies, federated identity management would be a recommended model stated Mr. Engle.

Bowden Hight, Texas Health and Human Services Commission (HHSC) was asked to present information to the committee. The Texas HHSC is comprised of five Enterprise agencies with more than 55,000 employees at over 800 locations across the state using about 900 separate IT applications. Its external users include HHSC Clients, Non-HHSC state agencies, federal agencies, trading partners and business associates.

Mr. Hight stated the goal for HHSC is a secure and meaningful information exchange to clients via self-service on multiple types of devices. Identity and Access Management solutions enable the right individuals to access the right resources at the right times for the right reasons. Examples of system uses include caseworkers working from multiple locations; providers validating eligibility for Medicaid and checking authorized services; clients accessing a 36 month history of their personal health records, clients requesting medical transportation and searching for providers; and CASA volunteers accessing portions of a foster child’s case record for real time information.

HHSC has three initiatives to support automated provisioning/de-provisioning, access authorization and single sign-on services to its agencies: Enterprise IAM which supports 23 applications from HHSC and DADS accessed by more than 8,000 users; Texas Integrated Eligibility Redesign System (TIERS) IAM which supports integrated eligibility and 12 other applications accessed by more than 16,000 users; and Enterprise Single Sign-On (ESSO) which supports 6 applications accessed by more than 13,000 users. The HHSC IAM solution includes: high availability/redundancy, disaster recovery support, support of multiple HHS agency applications and support of multiple application architectures.

Steve McCraw, Texas Department of Public Safety (DPS), submitted written testimony to the committee and took questions from members. In his testimony, he stated that the Texas Division

of Emergency Management (TDEM), through its advisory council, led a subcommittee on statewide credentialing for almost 2 years. Attendance from local, regional and state agencies was strong, with over 80-100 participants at meetings even after 18 months. Focus of the group was to review what exists today, what are requirements for statewide effort, what rules or grant incentives from the federal government are in place and what standards-based approaches are available to avoid proprietary solutions.

Credentialing is critical to supporting effective incident response. During major incidents, state and local resources may be quickly overwhelmed. When an affected jurisdiction requests outside assistance it should be able to identify and validate the credentials presented by responders to gain access to resources, sites and/or systems needed to perform their assigned duties.[29]

The purpose of credentialing is to ensure and readily validate the identity and attributes (qualifications, certifications, authorizations, privileges, or other pertinent data) of an individual. An effective credentialing solution enables a local incident commander to request, receive and use personnel from outside their jurisdiction. Credentialing should take place before an incident occurs. Some incidents, however, may require the activation of a just-in-time process for validating, issuing and tracking credentials. Each local jurisdiction has the authority to determine who receives credentials and how that process occurs.[30]

Ideally credentials are issued to anyone who may take part in response and recovery operations following a disaster. This includes emergency response officials, government officials and advisors at all levels, emergency management personnel, and private sector and nongovernmental partners.[31]

The US Department of Homeland Security (DHS) has developed a National Incident Management System (NIMS) Guideline for the Credentialing of Personnel to recommend protocols that facilitate a coordinated response to incidents. The processes laid out by DHS are voluntary and do not override the authority of local officials or states to manage response operations.[32]

During the reentry phase the standard placard and letters of access are the most recognizable badge for the purpose of access control. DPS currently uses Letters of Access (LOA) to provide a means to coordinate pre-disaster resource support and ensure appropriate access in a time of crisis.[33]

Placards assist with traffic management, helping ensure that vehicles entering the disaster zone have been properly activated and deployed in support of incident response. Local jurisdictions are free to create their own badge. [34]

In 2004, Homeland Security Presidential Directive 1 (HSPD-1)1 highlighted the need for a common identification standard for federal executive branch employees and contractors. This resulted in the creation of a set of technical and identity verification standards for issuing and validating credentials electronically across agencies. Those new credentialing standards and guidance were presented in the Federal Information Processing Standards (FIPS) 201, Personal

Identification Verification (PIV) of Federal Employees and Contractors Publication2. The result of the PIV standard is a single smart-card credential that functions with FIPS 201 technology. The state recognizes that federal employees responding to disasters in Texas must hold either a PIV credential or PIV interoperable (PIV-I) credential, depending on whether they deploy from the executive, federal, judicial or legislative branches.[35]

DPS has experience with the use of a First Responder Access Card (FRAC) piloted in Bexar County. FRAC is a joint effort between local, state and federal government agencies to determine a way to securely identify emergency responders, especially during a crisis or disaster situation. The overall experience with the FRAC card was overwhelmingly positive. All Fire and EMS personnel (12,000 cards) and all hospital-based physicians (4000 cards) have been issued Southwest Texas Regional Advisory Council for Trauma (STRAC) identification cards and continue to use them daily for building access to ERs and for MDs, computer access at some of the hospitals.[36]

Enrollment for the FRAC pilot of STRAC-ID in Bexar county followed the national standards which includes two forms of government identification (I-9 documents), sponsorship from a public safety department or hospital, photo and biometric capture, and the creation of a PIN number. Issuance of the credential required authentication of biometric, PIN and photo verification.[37]

Credentials were checked through a sponsoring Agency, usually the employer, who had legal responsibility for verifying all required licenses and certifications for employment and service. The next steps in the pilot were to link directly to the licensing entities (TCOLE), Texas Commission on Fire Protection (TCFP), DSHS, etc.) for real-time validation of licenses.[38]

When asked what the greatest benefit for such a system for state of Texas employees or citizens, Mr. McCraw stated that a single card or credential seems to be the biggest benefit. He added that efficiencies could be achieved from an information sharing perspective, as near real time updates on the status (i.e. renewed, revoked, etc…) of an individual's licenses could be made from an integrated information system. He cautioned that the system could pose a risk to citizens when an individual loses the card, or if it is seized by law enforcement (in the case of a driver's license), without an alternate identity credential.

Mr. Neville Pattinson, Smart Card Alliance, told the committee that many state and local organizations point to the FIPS 201 PIV-I standard and the availability of over 500 compliant products currently on the General Services Administration (GSA) Approved Products List as ways to achieve a more holistic approach to issuing electronic identifications (eIDs) and improving their own business processes. With over 6 Million PIV eIDs issued to Federal employees, significant steps have been taken to ensure the right person is entering a building and also to reduce cyber-attacks by using their eID for secure two-factor log-on IT resources. Two publications—Personal Identity Verification Interoperability (PIV-I) for Non-Federal Issuer (issued by the Federal CIO Council in May 2009) and PIV-I Frequently Asked Question—provide states, local jurisdictions and commercial organizations with applicable standards and guidance.

Mr. Pattinson stated that more than 16 states are currently planning or implementing some form of PIV-I strategy. Early state adoption of PIV-I credentials and infrastructure in Virginia, Colorado and Illinois has established baselines for achieving interoperability with federal credentials, services and systems. Mr. Pattinson believes that eID credentials issued by states can be made more widely applicable, be used more efficiently and enhance citizen privacy. States can move from issuing multiple credentials for a variety of state programs to issuing a single, multi-purpose, trusted credential for their citizens and employees.

In sum, Mr. Pattinson said that protecting peoples' identities and access to government benefits and services using only identification numbers, paper credentials and online passwords is failing. eIDs, based on smart card technology and potentially biometrics, solve these problems and ensure that security and privacy requirements are met for individuals while maintaining trust and preventing fraud.

FINDINGS AND RECOMMENDATIONS

Dr. Barber and the UT Center for Identity recommends the separation of the authentication and authorization functions to allow for concentration of expertise – identity proofing in the "authentication" center(s) and authorization of a given service for the agency issuing those services. Replication is costly, risky, inconvenient, and difficult to monitor for fraud. One state agency should perform the function of authentication with a high level of accuracy and security. Each other agency should focus on authorizing services for which they are responsible and the experts. The system as a whole will be more accurate, more efficient, and more secure.

Mr. Hight would appreciate the expansion of IAM services to all HHS agencies; support for mobile security and cloud security; support for identity federation and trust; role-based provisioning and active directory integration with Enterprise IAM.

Mr. McCraw informed the committee that based on federal efforts to achieve similar results, he believes the cost for the State of Texas would be significant. Further, he believes it may be more appropriate to engage a state agency that already possesses the required and relevant resources, skills and knowledge to lead and develop a product such as this, in which its creation will heavily depend on sophisticated technological capabilities. He suggested the Department of Public Safety may be better suited as a partner to provide identity authentication and confirmation regarding the status of various licensures that may be included. A study would need to be commissioned to determine the costs and efforts to successfully implement a statewide enterprise information system to provide these services.

The Committee recommends that DIR, in concert with appropriate state agencies, develop governance and standards related to IAM, and facilitate the federation of the agency solutions. Authentication and authorization functions should be separated. Additionally, DIR should conduct a study to determine the costs and efforts to successfully implement a statewide enterprise information system to provide these services.

As a first step, DIR should compile an inventory of existing solutions and an evaluation of the current challenges that the agencies have experienced in integrating or consolidating their existing solutions. Once this information is compiled, the state can begin to move forward for the implementation of a statewide IAM approach.

DIR should facilitate the development and collection of policies to ensure ongoing privacy protection and trust requirements. The project should evaluate the current IAM maturity of the state's agencies, include limiting factors and challenges, and scope of a proposed methodology for implementing an Integrated Identity Management Program.

PATENT ABUSES

BACKGROUND

The history of patent law can be traced back to medieval times and the granting of monopolies by the sovereign in Europe. The first United States Patent Act, entitled "An act to promote the Progress of Useful Arts" was enacted in 1790. Under terms of the Act, if the grantee submitted a specification describing the invention and a model thereof if appropriate, any two of the Secretary of State, the Secretary of War and the US Attorney General could grant a patent for up to fourteen years. The inventions had to be "sufficiently useful and important". [39]

The Patent Act safeguarded one of the basic building blocks of the American way - Innovation. Innovation is key to the very core of American enterprise. The advancement of modern society is a result of inventions and innovations in medicine, transportation and communications, among others. These advancements have benefited people in big and small ways the world over. The protection of these innovations is key to continuing further advancements. Since the beginning of the industrial economy, innovators, inventors and researchers have spent significant time, effort and money in developing intellectual property. The patent system protects that effort and offers the visionaries an opportunity to be rewarded for their innovation. However, abuses of the patent system occur and, in fact, are increasing. According to one report, patent abuse had $29 billion of direct costs to companies in 2011. While large firms had over half of the direct costs, most of the defendant companies were small or medium-sized firms. [40]

PricewaterhouseCoopers LLC predicted 2012 as a banner year for patent infringement litigation. Massive damage awards made headlines. The influence of nonpracticing entities (NPEs), also referred to as patent assertion entities, grew. The number of patents granted and suits filed continued their sharp upward trajectory. In the total history of patent litigation before 2012, only three patent cases awarded damages of $1 billion or more. But in 2012, three cases, tried in separate districts before different juries, resulted in awards of at least $1 billion. NPEs played a significant and growing part in patent litigation in 2012. The PricewaterhouseCoopers' analysis showed a significant disparity in median damages awarded to NPEs versus practicing entities. Over the last 12 years, the median damages award for NPEs has been twice that for practicing entities. [41]

Non-Practicing Entities are usually groups or companies that acquire patents with the sole intent to initiate patent infringement litigation. Typically, patent trolls have no intent to develop or manufacture products relating to the patents. Patent trolls generate a majority of their revenues by initiating infringement litigation against companies and settling for less than the cost of defending such litigation. [42]

Faced with the possibility of expensive litigation, many of the persons against whom the claims are made settle out of court with, or obtain licenses from, these NPEs even in circumstances where the claims are dubious.

A 2011 Boston University School of Law paper made three conclusions regarding this type of litigation. First, they found that NPE lawsuits are associated with half a trillion dollars of lost wealth to defendants from 1990 through 2010. These suits cost, on average, over $80 billion per

year in lost wealth. Second, these dollars did not go to the inventors. And, lastly, this type of litigation is focused on software and related technologies. [43]
The overall conclusion by BU was that the loss of billions of dollars of wealth associated with these lawsuits harms society. While the lawsuits increase incentives to acquire vague, over-reaching patents, they decrease incentives for real innovation overall. [44]

So when did all this begin? It's not new. According to some, the original patent troll was George B. Selden. He held an intentionally broad and vague patent, U.S. No. 549,160, for a "Road Engine". There is no evidence that he intended to develop the vehicle. He delayed the issuance of the patent sixteen years, and then, in 1903, he sued 30 automobile pioneers for patent infringement for the gasoline engine each used. Just as many businesses today decide it's the better business decision to just settle, 29 of them did. They paid him for a "licensing fee", which allowed them to continue to manufacture cars. However, Ford Motor Company fought the suit. Ford spent years fighting the suit. Although he lost initially, in the end, Ford won. One year before it was to expire, the Selden patent was declared invalid. [45]

Like many defendants that are targeted by patent trolls today, all but one of the businesses targeted by Selden settled. It seems to be easier to settle and sign a "licensing agreement" with the troll plaintiff. This strategy of settling, even when the facts are on a defendant's side, typically revolves around one factor: patent litigation is really expensive. Typically, trolls will be willing to settle for a price substantially less than the cost to defend. Often, the decision to pay a nominal expense to mitigate the claim of infringement instead of defend a company's innocence becomes a simple business decision. Selden found that many of his named defendants found it most wise to take the settlement route, netting some quick revenue for the troll plaintiff. [46]

However, Henry Ford was not interested in settling with Selden. Ford battled Selden for the next eight years, resulting in a trial and a judgment for the plaintiff, Selden. Ford then appealed the judgment in 1911, winning the case by proving that its engine was derived from the compression based Otto engine, which read against the gas turbine Brayton engine of the Selden patent. With Ford's victory at hand, it continued to develop into the leading automobile manufacturer that we know today. [47]

So why do some companies, like Ford, decide to defy business logic and fight the trolls? For some companies, it's a matter of principle and honor. The company strongly believes that it did not infringe the patents-at-suit and wants the public to be aware of the same. Other companies maintain a strong policy of standing up to the bullying patent trolls. By taking an infringement suit to trial, a defendant company sets the example that it is not an easy target to troll for quick and easy settlements. A troll better make sure it has some rock-solid patents if it seeks to name a company with a reputation to fight in its infringement complaints, otherwise it may end up with some invalidated patents and a pile of attorney's fees. [48]

In February 2014, 42 State Attorneys General wrote to the United States Senate Committees on Judiciary and Commerce, Science and Transportation to offer their support for patent abuse reform legislation. (A copy of the NAAG letter is in Appendix A). They wrote to both express their support of S. 1720 and H.R. 3309 and to request amendments to the legislation. The

Attorneys General wrote that "patent trolls stifle innovation and harm our economy by making dubious claims of patent infringement and using the threat of expensive litigation to extort money from small businesses and nonprofits." They conveyed the desperation of their constituents for relief from abuses of the patent system and noted that while these abuses once focused on technology businesses, they are now waged against many types of businesses, including banks, hospitals, restaurants and hotels. Further, patent trolls have threatened thousands of businesses and non-profits for their use of common, everyday technology such as scanners and Wi-Fi networks.[49]

The Attorneys General asked Congress to consider four specific amendments to the legislation before them.

1.**Confirmation of state enforcement authority**. They would prefer to have concurrent authority, with the Federal Trade Commission, to prohibit bad-faith demand letters. State attorneys general work closely with the FTC on many consumer protection matters and generally have the same authority to protect consumers and bring enforcement actions.

2.**Clarification of state-court jurisdiction over bad-faith demand letters**. Patent trolls argue that sending demand letters into a state does not support a finding of personal jurisdiction in the courts of that state. Federal legislation should confirm that state courts have personal jurisdiction over entities that direct unfair or deceptive patent demand letters into the state.

3.**Transparency for patentees that send demand letters**. The attorneys general support efforts to increase transparency in the patent enforcement process. They request that disclosure should be required of all those with a financial interest in the patent at the time a patent demand letter is sent.

4. **Patent litigation reform**. One reason that the patent troll business model is successful is that the cost of patent litigation is much higher than the cost of a settlement. They generally support federal patent litigation reform which would create an environment in which abusers of the patent enforcement system cannot thrive.[50]

At this writing, patent reform legislation has stalled in Congress.

INTERIM COMMITTEE HEARING

On Thursday, April 24, the House Committee on Technology met in Austin to consider Interim Charge #4:

> Study whether abuses in the patent system interfere with the goal of expanded opportunity and innovation for Texas businesses and whether actions by the state can address any such abuses.

The Committee heard testimony from Anne Peters, Texas Legislative Council; David Mattax, Office of the Attorney General; John Murphy, PhRMa; Justin Freeman, Rackspace; Nelson Roach, Texas Trial Lawyers Association; Dennis Skarvan, Caterpillar, Inc.; and Eric Woomer.

The Committee asked the Texas Legislative Council to prepare a memo on the State's authority to address alleged abuses in the assertion of patent infringement. (A copy of the memo is in Appendix B) Anne Peters, Senior General Counsel with the Texas Legislative Council gave an overview to the committee. She found concerns have arisen regarding the proliferation of entities formed to acquire patents for the sole purpose of making claims of patent infringement against businesses. Faced with the possibility of expensive litigation, many of the persons against whom the claims are made settle out of court with, or obtain licenses from, these NPEs even in circumstances where the claims are dubious. Enforcement of patent rights is governed by federal law. However, states have begun to explore state-law methods to curb this potential abuse of the patent system. Ms. Peters said there was a possible avenue for the state to go after bad faith assertion of patent rights. However, there is still a federal preemption concern. Also, there is a First Amendment freedom of speech issue if the state prohibits the sending of demand letters. Her testimony focused on whether the Texas Legislature has any authority to act in this area.

In summary, it is unclear what state action would be effective in curbing the potential abuses of patent enforcement. Disputes over patent ownership and rights are within the exclusive jurisdiction of federal courts. Federal courts regularly use the federal preemption doctrine to strike down state laws that conflict with federal patent laws and the policies contained in those federal laws. However, a showing that a person seeking to enforce a patent does so in bad faith may bring conduct relating to patent enforcement into the realm of state regulation.

David Mattax, from the Texas Attorney General's office testified that this issue was recently brought to his attention because of a case which could cause an increase in the cost of workers' compensation in the state. Sometimes, the biggest asset an entity has in bankruptcy is its patents. People purchase those patents when an entity is selling their assets in bankruptcy. The purchasers then research who may possibly be infringing on that patent. That is what happened in the case brought to his attention.

The patent holder is now claiming the methodology used to determine how to pay workers' compensation infringes on his patent. Almost every major workers compensation insurance company has now been sued on that. The patent holder is claiming that the methodology is based, in part, on the original patent. Mr. Mattax stated, however, that the federal courts will

deal with that. Where the state can go in attempting to remedy the patent troll situation is very problematic, according to Mr. Mattax.

Justin Freeman representing Rackspace Hosting testified that patent abuses are the result of thousands of bad patents being issued during the hi-tech growth years in the 90s. Trolls get these patents, with no intention of using them, hide their identity through the use of shell companies, which cannot be pierced in litigation proceedings, and mass mail claims. He said trolls are often patent lawyers with shell companies filing suits against legitimate businesses. To file a claim, a troll must simply pay a small fee and file a form asserting infringement. It is then up to the defendant to choose to spend a great deal of money on discovery, or to settle for a fraction of that amount. Importantly, there is no fee recovery available for the defendant, even if the defendant prevails. A defendant faces a lose-lose proposition. According to his testimony, Rackspace has seen a 500% increase, $3-5 million dollars, in legal costs defending against patent trolls over the last four years.

Rackspace believes these lawsuits to be extortionist in nature –brought to force a settlement. When a troll brings a claim, Rackspace bears all the burden and all of the risk. Even if they win the suit, they win nothing. They lose millions of dollars to defense costs which cannot be recovered. Two years ago, Rackspace started to defend themselves and take claims to their final determination. One of the first results of this strategy was victorious. The written order of the court confirmed that the patent was bogus – math isn't patentable. Mr. Freeman asserted that while federal patent reform remains crucial, he urged the state to review innovative approaches to the harms caused by patent trolling.

Dennis Skarvan, Deputy General Counsel, Caterpillar, is responsible for Caterpillar's Worldwide Intellectual Property practice. According to his testimony, Caterpillar has more than fourteen thousand patents worldwide and acknowledges that "bad-faith demand" letters are a problem. However, Caterpillar needs the ability to protect their patents. They need the right to send letters to those who are infringing Caterpillar's patents.

Mr. Skarvan wanted the committee to know there is a distinct difference between patent assertion entities and valid patent holders. Patent assertion entities mass mail letters to small businesses, retailers and banks hoping to "score" settlements based solely on intimidation. Valid patent holders communicate to the public regarding their patent portfolio including offering their patents for license, and when necessary, protecting their patented products from being infringed. In many instances the primary goal of the sender is simply to prevent copying and ensure product differentiation within an industry. This, according to Mr. Skarvan, is best accomplished by providing early notice, before moneys are committed to substantial design and manufacturing investment, so that "design-arounds" are more readily accomplished. Recipients take these letters seriously in the design and development of new products and technology to avoid knowingly infringing on another's patent rights. Legitimate patent demand communications serve an important role in advancing technologies, providing consumers more choices and ensuring the efficient self-policing of patent rights as well as preventing patent suits before they happen.

Caterpillar believes legislation on patent demand communications should address three areas of concern:

- sanctions should be limited to those who send false and misleading patent demand letters to large populations of end users to extort settlements – routine business-to-business communications should not be swept-in. Legislation regarding patents must not interfere with legal business-to-business communication and inadvertently chill legitimate patent communications.

- clear "rules of the road" with guidance as to what such communications should and should not contain - not a list of vague and subjective good faith and bad faith factors for a court to weigh in determining what constitutes a bad faith patent demand letter; and,

- a "safe harbor" should be provided that clearly states what all patent owners remain free to do. An appropriately crafted safe harbor will also help to insulate any legislation from challenge on Constitutional grounds as intruding on protected free speech.

Additionally, Caterpillar would encourage the legislature to forego a private cause of action and authorize the state Attorney General to act as a "clearinghouse" or aggregator of complaints regarding patent assertion entities. This would allow end-users who have received threatening letters for patent infringement to file complaints with the Attorney General who can then identify patterns of abuse by the sender and pursue legal action against bad actors.

All witnesses stated that it was mostly in the hands of the federal government. John Murphy, PhRMa, said that bad faith standards which vary from state to state could cause problems for multinational corporations like his. He stressed the importance of federal oversight of the system. Nelson Roach, representing the Texas Trial Lawyers Association, said the Fifth Circuit has ruled that states can act in the field of patent law where there is a bad faith assertion of a patent right. Eric Woomer from Mainstream Patent Coalition, which represents many Texas companies who are victims of patent trolls, said the current situation is equivalent to a shakedown, where the trolls extort companies for settlements. He said, sooner or later, there has to be a federal solution.

FINDINGS AND RECOMMENDATIONS

According to the National Conference of State Legislatures, a number of states have passed legislation to attempt to stop, or at least decrease, patent troll abuses. Below is a summary of legislation from other states as of October 1, 2014.[51]

States	Legislation	Summary
Alabama	SB 121 *Signed by GOVERNOR 4/2/2014; Act No. 2014 218*	Prohibits a person from asserting a claim of patent infringement in bad faith; authorizes the Attorney General to investigate claims and file enforcement actions; authorizes targets of patent infringement assertions in bad faith to file suit in circuit court for damages; provides for exemplary damages; provides factors for consideration by the court when determining whether a patent infringement assertion was made in bad faith; provides for criminal penalties.
Connecticut	SB 258	Concerns bad faith claims or assertions of patent infringement; provides judicial relief to persons who are the targets of bad faith claims or assertions of patent infringement.
Georgia	HB 809 *Signed by GOVERNOR 4/15/2014; Act No. 513*	Prohibits bad faith assertions of patent infringement; provides for definitions; provides for factors for determining whether a bad faith assertion of patent infringement has been made; requires the posting of a bond when a bad faith claim of patent infringement has been made; provides for enforcement; provides for damages; provides for related matters; repeals conflicting laws.
Idaho	SB 1354 *Signed by GOVERNOR 3/26/2014; Chapter No. 277*	Provides that it is unlawful to make bad faith assertions of patent infringement; relates to personal jurisdiction; grants authority to the Attorney General and district courts; provides a private cause of action, remedies and damages and a limitation of action; establishes provisions relating to bond; provides for severability.
Kansas	HB 2663	Relates to bad faith assertions of patent infringement.
Kentucky	SB 116	Establishes a bad faith assertion of patent infringement as a violation of the consumer protection chapter; authorizes the utilization of the remedies available for those violations in addition to private remedies established in this legislation.

Louisiana	SB 255 *STATUS: Signed by GOVERNOR 5/28/2014; Act No. 297*	Provides relative to Unfair Trade Practices and Consumer Protection Law; provides that no person shall make a bad faith assertion of patent infringement against an end user; provides for unfair and deceptive trade practices; provides that any person who is found liable shall be liable to the attorney general for all costs, expenses and fees related to investigations and proceedings associated with the violation, including attorney fees.
Louisiana	HB 564	Makes it an unfair trade practice to engage in bad faith assertions of patent infringement.
Maine	SB 654 *STATUS: Signed by GOVERNOR 4/14/2014; Public Law No. 543*	Authorizes a person against whom a bad faith assertion of patent infringement has been made to bring a civil action in Superior Court for equitable relief, damages, court costs and fees and punitive damages; authorizes the Attorney General to bring an action; provides that a bad faith assertion of patent infringement is a violation of the Maine Unfair Trade Practices Act; provides for a bond requirement.
Maryland	HB 430	Provides that a person may not make an assertion of patent infringement against another in bad faith; authorizes a court to consider whether a person made an such assertion in bad or good faith; provides the Attorney General and the Division of Consumer Protection of the Office of the Attorney General have the same authority to take action; authorizes the bringing of a civil action to recover injuries and losses sustained as a result of a violation of these provisions; authorizes the awarding of damages.
Maryland	SB 585 *STATUS: Signed by Governor; 5/5/2014; Chapter No. 307*	Provides that a person may not make an assertion of patent infringement against another in bad faith; authorizes a court to consider whether a person made an such assertion in bad or good faith; provides the Attorney General and the Division of Consumer Protection of the Office of the Attorney General have the same authority to take action; authorizes the bringing of a civil action to recover injuries and losses sustained as a result of a violation of these provisions; authorizes the awarding of damages.
Michigan	HB 5701	Prohibits and provides remedies for claims of patent infringement made in bad faith..

Mississippi	HB 521	Prohibits bad faith assertions of patent infringement; makes certain legislative findings; defines certain terms; provides factors that the court may consider in determining whether a bad faith assertion of patent infringement has been made; provides procedures for actions under this act; provides for a demand letter in an action; requires the posting of bond; provides for enforcement, remedies and damages.
Mississippi	HB 1074	Prohibits bad faith assertions of patent infringement; makes certain legislative findings; defines certain terms; provides factors that the court may consider in determining whether a bad faith assertion of patent infringement has been made; provides procedures for actions under this act; provides for a demand letter in an action; requires the posting of bond; provides for enforcement, remedies and damages.
Missouri	HB 1374	Prohibits a person from making a bad faith assertion of patent infringement, lists evidence the court may consider; provides remedies the court may award; provides to recover actual monetary loss from such a violation or violations, or, to receive ten thousand dollars in damages for each such violation, the attorney general's authority will investigate, restrain, and prosecute civil actions under the Missouri antitrust law shall apply to investigating and prosecuting actions.
Missouri	SB 706 *STATUS: Signed by GOVERNOR; 7/8/2014.*	Prohibits bad faith assertions of patent infringement; creates factors that a court should consider when determining if a person has made such an assertion; allows the Attorney General to investigate, restrain, and prosecute such assertion claims; provides that any monetary awards from such action shall be credited to the Antitrust Revolving Fund to pay for such actions.
Nebraska	LB 677	Adopts the Nebraska Patent Abuse Prevention Act.
Nebraska	LR 534	Allows for an interim study to examine issues surrounding patent assertion entities, commonly referred to as patent trolls.
New Hampshire	SB 303 *STATUS: Signed by GOVERNOR 7/11/2014; Chapter No. 2014-197*	Prohibits a person from making bad faith assertions of patent infringement; establishes a private right of action for violations and provides for enforcement by the Attorney General.
New Jersey	AB 2462	Prohibits bad faith assertion of patent infringement.
New Jersey	SB 1563	Prohibits bad faith assertion of patent infringement.

North Carolina	HB 1032	Prevents the abusive use of patents; provides that the attorney general shall provide aid in investigating bad faith infringement claims.
North Carolina	SB 648 *STATUS: Signed by GOVERNOR 8/6/2014; Session Law Number 2014-110*	Creates transparency in contracts between the attorney general and private attorneys; provides that a state agency may not enter into a contingency fee contract with a private attorney unless the Attorney General makes a written determination that contingency fee representation is both cost-effective and in the public interest; provides that the Attorney General shall request proposals from private attorneys and draft a written request for proposals when such a determination is made. *Part II of the bill makes a bad faith assertion of patent infringement an unfair and deceptive trade practice.*
Ohio	HB 573	Prohibits a person from making a bad faith assertion of patent infringement; permits a person aggrieved by a bad faith assertion of patent infringement to bring a tort action; authorizes the Attorney General to investigate and to institute a civil action if the Attorney General believes a person has made a bad faith assertion of patent infringement.
Oklahoma	HB 2837 *STATUS: Approved by Governor 5/16/2014; Chapter No. 305*	Relates to patent infringement; prohibits a person from sending any written or electronic communication that states that the intended recipient or any affiliated person is infringing or has infringed a patent and bears liability or owes compensation to another person if the communication falsely states that the litigation has been filed or the assertions lack a reasonable basis in fact or law; provides that a court may award a plaintiff damages, costs and fees, and punitive damages of a specified amount.
Oregon	SB 1540 *STATUS: Signed by Governor 3/3/2014; Chapter No. 19*	Prohibits a person or person's affiliate from communicating a demand to recipient if in demand person or affiliate alleges, asserts or claims in bad faith that recipient has infringed or contributed to infringing patent or rights that patentee, assignee or licensee has under patent; permits a prosecuting attorney to make a finding as to whether such person or affiliate has acted in bad faith and to serve investigative demand or take enforcement action against person for engaging in unlawful practice.
Pennsylvania	SB 1222	Prohibits bad faith assertions of patent infringement; confers powers and imposing duties on the Attorney General; imposes penalties.

Rhode Island	SB 2822	Authorizes the attorney general and persons aggrieved to file a bad faith patent infringement suit in superior court seeking equitable or monetary relief from persons filing frivolous patent infringement claims as well as costs, fees, reasonable attorney's fees and punitive damages of a specified amount.
South Carolina	HB 4371	Provides that no person in this state, in regard to patent ownership and potential patent infringement, may intentionally interfere with the existing or prospective contractual relations of another person; provides that a person aggrieved by another person's intentional interference with his existing contractual relations or with his prospective contractual relations has a cause of action in both instances against that person; includes fraud; provides for damages.
South Carolina	HB 4629	Provides that it is an unlawful trade practice for a person or entity to make a bad faith assertion of patent infringement; provides evidential considerations; provides remedies.
South Carolina	SB 1121	Relates to unlawful trade practices; provides that bad faith assertions of patent infringement are unlawful trade practices; provides for the factors that a court may consider when making a bad faith determination; provides for consideration by the court.
South Dakota	SB 143 *STATUS: Signed by GOVERNOR; 3/26/2014.*	Provides for a civil remedy for a bad faith assertion of patent infringement.
Tennessee	HB 2117	Relates to Remedies and Special Proceedings; creates a cause of action against any person who makes a bad faith assertion of patent infringement.
Tennessee	SB 1967 *STATUS: Public Chaptered 5/15/2014; Chapter No. 879*	Relates to Remedies and Special Proceedings; creates a cause of action against any person who makes a bad faith assertion of patent infringement.
Utah	HB 117 *STATUS: Chaptered 4/7/2014; Chapter No. 310.*	Creates a cause of action for the distribution of bad faith demand letters asserting patent infringement; prohibits the distribution of bad faith demand letters asserting patent infringement; allows a person who has been the recipient of a demand letter asserting patent infringement to file an action; allows the court to require the filing of a bond to cover costs of the action; provides remedies; sets limits on punitive damages.

Vermont	HB 299 *STATUS: Signed by GOVERNOR 5/22/2013; Act No. 0044*	Authorizes an award of liquidated damages to a consumer for a delay in removing a propane tank by a seller upon the disconnection of service; prohibits transmission of an unsolicited bill or demand for payment; increase the penalty for failure to comply with consumer protective civil investigations; reorganizes provisions of the Consumer Protection Act. *Section 6 addresses bad faith assertions of patent infringement.*
Vermont	SB 7 *STATUS: Signed by GOVERNOR 5/24/2013; Act No. 0047*	Creates the Social Networking Privacy Protection Study Committee to study the issue of prohibiting employers from requiring employees or applicants for employment to disclose a means of accessing the employee's or applicant's social network account; sets forth provisions concerning patent infringement; prohibits persons from making bad faith assertions of patent infringement; specifies factors that a court may consider as evidence of a violation; provides for civil actions and related damages. *Section 2 addresses bad faith assertions of patent infringement.*
Virginia	HB 12	Prohibits any person from making in bad faith an assertion, claim, or allegation that a resident of the Commonwealth is infringing a patent; creates a cause of action for damages and an injunction against a person threatening to bring legal action for alleged patent infringement; provides a bonding requirement.
Virginia	HB 375 *STATUS: Signed by GOVERNOR 5/23/2014; Acts of Assembly Chapter No. 810.*	Relates to patent infringement; relates to assertions made in bad faith; prohibits any person from making in bad faith an assertion, allegation, or claim that a resident of the Commonwealth is infringing a patent; provides that the enforcement of these provisions are to be exercised solely by the Attorney General or an attorney for the Commonwealth; provides that these provisions do not create a private right of action.
Virginia	SB 150 *STATUS: Signed by GOVERNOR 5/23/2014; Acts of Assembly Chapter No. 819.*	Relates to patent infringement assertions made in bad faith; prohibits any person from making a bad faith assertion, allegation, or claim that a resident is infringing a patent; creates a cause of action for damages and an injunction against a person threatening to bring legal action for alleged patent infringement; provides bonding requirements; provides that any person outside the Commonwealth asserting patent infringement shall be deemed to be conducting business within the Commonwealth.

Wisconsin	AB 656	Relates to notifications concerning the assertion of rights under a patent or pending patent; provides a penalty.
Wisconsin	SB 498 *Signed by GOVERNOR Act No. 339*	Relates to notifications concerning the assertion of rights under a patent or pending patent; provides a penalty.

The Committee heard suggestions for legislation that included, among others, setting out in statute the requirements for a database or registry of firms sending patent assertion demand letters; requiring specific mandatory language in patent assertion demand letters; expanding the DTPA to include bad faith patent infringement claims; creating a cause of action enforceable by the state Attorney General against bad faith claims; and developing a private cause of action.

Importantly, the Committee was asked to be cautious so that sanctions are limited to those who send false and misleading written patent demand letters in bad faith to large populations of end users to extort settlements. Those legitimate businesses that both hold patents and find themselves the victim of patent assertion entities asked that the committee take special effort so that routine business-to-business communications would not be swept-in to the solution; clear "rules of the road" with guidance as to what such communications should and should not contain, as opposed to a list of vague and subjective good faith and bad faith factors for a court to weigh in determining what constitutes a bad faith patent demand letter; and, a "safe harbor" should be provided that clearly states what all patent owners in good faith remain free to do.

The Committee found that the drafting of legislation to address patent abuses, on the state level, will be complex, however, that legislation is necessary. It is important that legitimate holders of patents be protected, that innovation be encouraged and that businesses not be extorted. An appropriately crafted bill will include specific requirements that will help to insulate the legislation from federal patent law preemption or challenge on Constitutional grounds including protected free speech.

During testimony, there seemed to be general consensus that a registry or database of patent assertion entities be developed by statute. The Eastern District Federal Court in Texas (as well as other jurisdictions) has patent rules related to infringement contentions which require a plaintiff to disclose the details of their infringement allegations. These rules should be referenced in the initial drafting of legislation to address this issue. See Appendix C.

The Committee has requested that several associations work together, getting additional input from businesses that hold patents, to draft legislation for consideration. Specifically, Texans for Lawsuit Reform, Texas Civil Justice League, and the Texas Trial Lawyers Association have been asked to work on legislation with Caterpillar and Texas Instruments. At the time of this report, their proposal had not been finalized.

ENTERTAINMENT SOFTWARE INCENTIVES

BACKGROUND

Entertainment software includes video games and other software programs or applications designed for amusement or to support a hobby. The technology is similar to that used for screen savers and mobile game applications.[52] The entertainment software industry is not child's play. It is a rapidly growing part of the technology sector. A 2010 Entertainment Software Association report demonstrates the economic benefits provided by the entertainment software industry to the U.S. economy as a whole.[53]

It gives a series of remarkable findings:

- The U.S. computer and video game software publishing industry directly employs more than 32,000 people in 34 states.

- In 2009, these employees received total compensation of $2.9 billion.

- The total U.S. employment, both direct and indirect that depends on game software now exceeds 120,000.

- For the four-year period 2005 through 2009, direct employment in the U.S. computer and video game software publishing industry grew at an annual rate of 8.65%.

- The U.S. computer and video game software industry's value added to U.S. Gross Domestic Product (GDP) was $4.9 billion.

- The real annual growth rate of the U.S. computer and video game software industry was 10.6% for the period 2005-2009 and 16.7% for the period 2005-2008.

- During the same periods, real growth for the U.S. economy as a whole was 1.4% for 2005-09 and 2.8% for 2005-08.

- In 2009, the average annual compensation per employee (wages, salaries and employer contributions for pensions, insurance and government social insurance) was $89,781.[54]

According to the Entertainment Software Association, Texas ranked second nationally in video game employment in 2009, with 13,613 direct and indirect employees. The industry added more than $490 million to the state economy and grew by a real annual rate of approximately 13.7 percent from 2005 to 2009, nearly five times the growth of the state's overall economy.[55] In an effort to foster economic development and create new jobs, Texas, like so many other states, offers incentives to the entertainment software industry. GamesIndustry International, with the assistance of the Entertainment Software Association and Pricewaterhouse Coopers, assembled the following chart of incentives offered by 21 US States to the entertainment software industry.[56]

United States

State	Program	Incentive	Notes	Agency
Alabama	Alabama Film Incentive	Rebates on 35% of Alabama labor, 25% of non-payroll expenditures	Total production cost must fall between $500,000 and $20 million	Alabama Film Agency
Arkansas	Arkansas Film Commission	Rebates on 20% of qualifying expenditures, plus 10% for Arkansas labor	Companies must spend $200,000 on the project in a six-month period	Arkansas Film Commission
Colorado	Colorado Film Incentive	Rebates on 20% of Colorado expenditures	Program has limited funding each fiscal year	Colorado Office of Film, Television, Media
Connecticut	Digital Media and Motion Picture Tax Credit	10% to 30% tax credit on Connecticut expenditures	Credits issued on a sliding scale; only >$1 million productions get full 30% credit	Department of Economic and Community Development
Florida	Entertainment Industry Financial Incentive Program	20% to 30% tax credit on expenditures (including wages)	$8 million incentive cap per project	Office of Film & Entertainment
Georgia	Entertainment Industry Investment Act	20% to 30% tax credit	Project must spend minimum $500,000 on qualified Georgia expenditures, entire program has a fiscal year cap of $25 million	Georgia Film, Music & Digital Entertainment Office
Hawaii	Motion Picture, Digital Media, & Film Production Tax Credit	15% to 20% tax credit on Hawaii expenditures	$8 million cap per qualified production	Hawaii Film Office

Louisiana	Digital Interactive Media and Software Development Incentive	35% tax credit on labor, 25% tax credit on expenses	No cap, no minimum requirement, option to take a rebate worth 85% of tax credit	Louisiana Economic Development
Maine	The Maine Attraction Film Incentive	Tax rebate on 12% of Maine resident labor, tax credits on 5% of other production expenses	Minimum qualified expenditure of $75,000, credit cannot exceed taxes owed	Maine Film Office
Michigan	2013 Film and Digital Media Incentive	32% of payroll, 27% of production expenditures	Minimum $100,000 spend required, incentives reduced beginning in 2015	Pure Michigan Film Office
Mississippi	Motion Picture Production Incentive	25% rebate of base investment made in the state, 30% of resident payroll	$50,000 minimum spend to qualify, $8 million rebate cap per project	Mississippi Department of Revenue
New Jersey	Edison Innovation Digital Media Tax Credit Program	20% tax credit for payroll and production expenses	Minimum $2 million of qualified expenditures, half of which are NJ resident salaries, must create and maintain 10 new full-time jobs with minimum $65,000 salary	New Jersey Motion Picture & Television Commission
New Mexico	NM Refundable Film Production Tax Credit	25% tax credit on labor and qualifying expenditures	No minimum spend requirement, claims to be submitted annually	New Mexico Film Office
North Carolina	Digital Media Credit	15% of wages, 20% on research expenses paid to NC schools	Minimum $50,000 spend to qualify; $7.5 million cap on credits received	North Carolina Department of Commerce

Ohio	Ohio Motion Picture Tax Credit	35% tax credit for resident wages, 25% for other expenditures	Minimum $300,000 Ohio spend to qualify	Ohio Film Office
Puerto Rico	Puerto Rico Production Tax Credit Program	40% tax credit on wages, production costs	Minimum spend of $100,000	Puerto Rico Film Commission
Rhode Island	Motion Picture Tax Credit	25% tax credit on wages, production costs	Minimum spend of $100,000, $5 million cap on credit	Rhode Island Film and TV Office
Texas	Moving Image Industry Incentive Program	Up to 17.5% of wages and expenses	No cap on amount, $100,000 minimum spend required	Texas Film Commission
Utah	Motion Picture Incentive Program	Up to 20% tax credit on payroll and in-state spending	$6.8 million annual incentive cap for the program	Utah Film Commission
Virginia	Virginia Motion Picture Production Tax Credit	Up to 20% tax credit for wages and expense, plus up to an extra 20% on wages if eligible spending tops $1 million	Minimum $250,000 in-state spending to qualify	Virginia Film Office
Wisconsin	Wisconsin Film Tax Credit	25% wages and expenses	Wages for first three years of development must top $100,000	Department of Tourism

Some argue that Texas' number two ranking in the video game industry is driven by one of the largest tax incentive programs in the nation, which offers cash grants to video game productions for wages paid to Texas residents. The legislature included $85 million in the budget for the program for next year. The reason for the incentives is difficult to argue. According to Reuters, the global video game industry – including mobile games on smartphones and tablets – was expected to grow to $66 billion in revenues in 2013, and to $78 billion in 2017. The top three software companies have a combined $10 billion in annual revenues. The average annual salary for an employee of the video game industry employees is about $90,000. The industry continues to grow rapidly, while other sectors decline.[57]

States want to capitalize on this growing segment of the economy. Many states would like to be the recognized leader of the industry. What Hollywood is to the movie industry, states want to become to the video gaming industry. To that end, states are offering incentives to attract businesses, which will then, theoretically, grow the other ancillary businesses needed to support it.[58]

COMMITTEE HEARING

On Friday, February 28, the House Committee on Technology met in the Edith O'Donnell Arts and Technology Building on the campus of UT Dallas to consider Interim Charge #5:

> Evaluate Texas' competitiveness with other states in recruiting and cultivating the software industry, including entertainment software; fostering economic development; and creating potential new jobs. Examine current incentives and regulations and whether these assist or hinder the expansion of the entertainment software industry in Texas.

The Committee heard testimony from Thomas Linehan, Director, Arts & Technology, UT Dallas; Thomas Foulkes, V.P., State Government Affairs, Entertainment Software Association; Heather Page, Director, Texas Film Commission; Stuart McKee, Chief Technology Officer, Microsoft Corporation; and Leslie Ward, Sr. Vice President, AT&T.

Dr. Linehan showed three animations completed by the Arts and Technology department at the University of Texas at Dallas (UTD). The animations demonstrated the quality of work written and produced by students at UTD. This field requires a multidisciplinary collaboration between students in various liberal arts and science specializations. English, Engineering, Computer Science, and Visual Arts students are involved in the production of animations. The Technology which is used for animation has more than just entertainment value. Its applications go beyond entertainment to professional uses including architecture and realistic simulations for education and training, among others.

The animation pieces produced at UTD have used three dimensional animation, focused on realistic, virtual humans which have proven useful in professional training and education, as well as the more often considered video gaming for entertainment. Animations developed by UTD have been used in such varied areas of training as US Army combat situations, professional nursing training and teacher training, among others. The animation studio course produces high quality animation which is critiqued by professional animators in the Dallas-Ft. Worth Metroplex. The video game industry is using film industry personnel to create lifelike game playing experiences and computer-generated imagery for consumers.

Thomas Foulkes, Vice President of State Government Affairs for the Entertainment Software Association, focused on entertainment gaming and the dramatic changes that have occurred in the field. The industry is about 40 years old and is growing at a fast pace. Currently, video game revenues are greater than domestic movie box office and music industry revenues combined. The audience is changing, too. Entertainment software is no longer just for teenage boys - the average gamer is 30 years old, nearly half of them are female and about half of all households have a video gaming device. The companies that create these computer and video games require a significant investment, in both infrastructure and people. Although games can take years to develop and produce, if a title is a hit, it can prompt the development of sequels and add-ons. In these cases, a game’s production cycle can last for years, thereby creating long-term, sustainable growth.

According to Foulkes, the computer and video game industry generates over $25 billion in annual revenue nationally and more than $63 billion globally. When including both direct and indirect hires, the industry employs more than 120,000 people nationwide with an average annual compensation for direct employees of over $92,000.

Foulkes emphasized that Texas is home to the second largest concentration of computer and video game personnel in the nation. Currently, there are about 200 computer and video game developers and publishers located throughout the state. The industry is responsible for 13,600 direct and indirect employees in Texas, with an average salary of about $88,000 for the direct employees. A few years ago, Texas ranked third in the nation behind Washington State, which is home to large employers such as Microsoft and Nintendo of America.

Foulkes stated that among the reasons for Texas' growth in the field is the Moving Image Industry Incentive Program. In December 2010, the Texas Comptroller of Public Accounts released "An Analysis of Texas Economic Development Incentives 2010". It examined investment by these industries from the effective date of the improved incentive legislation in 2009 through August 31, 2013. The total estimated spending by all industries on approved projects was $907.4 million. $231.2 million, or a little more than a quarter of that, came from video game production. The report demonstrated that the video game industry generated 3,414 or a quarter of all the full-time equivalent jobs. In addition, the video game production incentive provides Texas taxpayers with the highest return on their investment by providing the lowest cost per full-time job of all the moving image industries at $5,256.

For computer and video games, incentive programs offered by various American states and Canadian provinces continue to improve to lure more of these high-tech, high pay jobs. Just as they offer increased incentives for film projects, states are creating an increasingly competitive marketplace for video game projects.

According to Foulkes, Texas is doing a fantastic job. He suggested that Texas "stay the road, stay the course." The state has provided the necessary foundations for the field. The key elements needed for the industry are a favorable, predictable regulatory environment, strong educational programs to provide a well-trained and educated workforce, an affordable cost of living and incentives to lure new projects and companies to the state. Texas has listened to the industry and understood. The incentives are working.

Next, the committee heard from Heather Page, Director of Texas Film Commission in the Office of the Governor. The Film Commission administers incentives for the entertainment industry. Ms. Page noted the convergence of technologies in film, television, and visual effects. There is film technology, visual effects and animation work that goes into virtually all video game productions. It is an exciting time for the field which continues to grow and evolve allowing individuals involved in the industry to build their skill sets. There is also a convergence of skills needed for these productions. Various creative and artistic talents, computer science, video, technological and engineering skills are necessary for the production of video games.

As previously stated, the return on investment of the state's incentive program is highest for video games. However, it should be mentioned that the return on investment is much higher than actually reported. Related allied industries are also growing and relocating in Texas. Companies that do post production work, beta testing and R&D, as well as camera manufacturers, among others, are looking for a place to locate. Many of them are finding it here. With the increased technological fields and favorable environment, Texas is ground zero for the industry. The environment is right. The regulatory environment, the educational opportunities, the workforce, cost of living, everything the industry needs is here. These businesses are not captured in the true value of the incentive program. Also, video games take 60 days to a few years to produce. That timeline does not include the development which can take years. No preproduction, creative or development numbers are included in the incentives. Only the actual production jobs are included in the incentive program.

Page wanted to emphasize that although Texas' investment is less, it's doing better than its main competitors. Investment in its incentive program is more modest than its neighbors, but Texas is more successful. The greatest competitors are Louisiana, Georgia and New Mexico. The incentives are less, but the results are greater. Again, it is because Texas has a combination of factors in its favor - the talent is here, educational programs are here, and people want to live here. Some companies choose not to take incentives, but locate here anyway because of the workforce, education, business and regulatory environment. Ms. Page was asked to provide a report to the committee which shows the amount of state of Texas incentive dollars spent on the video game industry. That chart is located in Appendix D.

Stuart McKee, Chief Technology Officer for Microsoft Corporation state and local government relations testified before the committee. He brought to the committee's attention that there is now more technology in our pockets - in our cell phones and mobile devices - than it took to put a man on the moon. These devices have more bandwidth, storage and processing capabilities than was needed for a lunar exploration. The technology field is evolving rapidly - this is a time of incredible price points and technological power. Whereas the high tech industry began with hardware and its devices, it is now centered on software. Software is key. It is not just the processing power, but the capabilities - which is software.

Mr. McKee stressed three main points. One, small and medium sized companies employee more than 50% of the country's workers. More importantly, hi-tech small and medium size companies grow much faster than others. Two, education is critical. Texas is doing an exceptional job cultivating incredible talent. And, finally, basic infrastructure is vitally important. Electricity and connectivity is still the basic foundation needed by the industry.

Leslie Ward, Sr. Vice President at AT&T concluded the committee's testimony. In commenting about Texas' competitiveness in recruiting and cultivating the software industry, Ms. Ward praised the smart, forward-looking policies of the Texas legislature. Because of these policies, AT&T and other companies continue to grow and invest in Texas. Importantly, Texas just passed California in technology exports.

Ward stressed that connectivity is vital for the technology industry. These companies rely on abundant, high speed broadband. It is critical for technology companies. While noting that public policy plays an integral part in the environment that hi-tech companies need to grow and prosper, she expressed her gratitude to the legislature for passing two important bills last session, HB 800 and HB 1133.

HB 800 encourages more research and development investment in Texas by reducing the tax burden on research and development activities; encouraging new investments in the state; promoting the creation of new, highly skilled, high-paying jobs in Texas; and complementing the state's manufacturing sector by encouraging innovation and efficiency in applying new technologies and producing new products.

HB 1133 provided a sales and use tax refund for property used in connection with cable television service, Internet access service, or telecommunications services, with the intention of spurring new economic activity, creating new jobs, improving broadband services, and restoring Texas' competitive advantages over other states when it comes to investment in such services. Together, these bills have provided a direct positive impact on the state's economy.

FINDINGS AND RECOMMENDATIONS

In its evaluation of Texas' competitiveness with other states in recruiting and cultivating the software industry, including entertainment software, the committee found that Texas is doing quite well. It is a convergence of several areas, not just economic incentive programs, that continue to make Texas the state to beat in fostering economic development and creating potential new jobs. That is, a predictable and favorable regulatory climate; exceptional educational programs for both creative arts and technical training which provide a qualified workforce; and a good cost of living make Texas a place for this growing industry.

In examining the current incentives and regulations and whether these assist or hinder the expansion of the entertainment software industry in Texas, the committee found that the incentives assist in the expansion of the industry. The committee also found that although some of its incentives are more modest than other states, Texas is still outperforming those states, because of the other factors involved - an excellent regulatory environment, a highly educated workforce and a relatively low cost of living.

STATE REGULATORY AND TAX POLICY

BACKGROUND

According to Chief Executive.net, Texas ranks number one for the best state in which to do business. The site surveyed its CEOs. The results were based on rankings of each state's taxation and regulatory policies, workforce quality and living environment.[59] According to the TechAmerica Foundation State-by-State Overview of International Trade of Tech Goods, Texas is the largest exporting state with $45 billion in exports.[60] In his book, *Fed Up!*, Governor Rick Perry wrote, "We know that the route to success is lower taxes, smaller government, and freedom for every individual, because we have seen it work." He believes that Texas is leading the nation "by remaining committed to the idea that Americans prosper when left free from government interference."[61]

States continue to offer ever-increasing incentives to lure, or keep, companies and their jobs. Although many types of businesses are courted, the technology sector, with its high salaries and well-educated workforce, is often targeted. A sample list of financing and tax incentives offered by states can be found at this site: http://businessfacilities.com/state-by-state-incentives-guide/
On their website, the US Chamber of Commerce states that "technology is the thread that runs through a competitive economy, driving multiple and diverse industries and impacting myriad policy issues that are vital to commerce and communication. Technology-based industries and businesses create tremendous growth and opportunity in the U.S. economy and are essential to competing in an interconnected world. Outdated laws and regulations impede U.S. technological innovation and deployment. The U.S. Chamber promotes market-based solutions, policies that foster investment in technology research and deployment, and balanced regulatory treatment of technical platforms."[62]

INTERIM HEARING

On Thursday, April 24, the House Committees on Technology and Ways & Means met in a joint hearing in Austin to consider Interim Charge #6:

> Review state regulatory and tax policy to ensure that investment in technology infrastructure, goods, and services is unfettered and that Texas is able to capitalize on innovation to fuel additional job growth, business expansion, and investment.

The committee heard testimony from Lia Edwards, Texas Comptroller's Office; Deborah Giles, Texas Technology Consortium; James Grice, Digital Realty; Robert Howden, Texans for Economic Progress; Sylvia Kang, CyrusOne; Frank Lyles, (Self); Bryan Marsh, Digital realty; Shane Menking, Data Foundry; and Stephanie Simpson, Texas Association of Manufacturers.

Robert Howden, Chairman of Texans for Economic Progress (TEP), told the committee that our great state is consistently recognized as a top place to do business thanks to a robust economy and thriving technology sector. Further, the Legislature made solid strides in encouraging investment with the passage of the R&D sales tax incentive and the manufacturing sales tax exemption for broadband equipment during the last legislative cycle.

However, he said tax policy is a critical component to ensure that technology infrastructure in Texas is capable of meeting consumer demand. In addition to ensuring consumers can do all they want and need to do online, we know investment in technology infrastructure creates jobs and economic opportunity in our state. He cited a study by PCIA, a national wireless infrastructure association showing that private investment in wireless infrastructure through 2018 will generate as much as $1.2 trillion in economic growth and create 1.2 million new jobs.[63] The report evaluated the economic and job-creation impacts generated by projected wireless infrastructure investments between $34 billion and $36 billion per year over the next five years.

With this study in mind, TEP looks forward to working with the committees to determine what can be done to encourage investment in technology to keep Texas on the forefront of innovation. And to ensure we continue to lead the way as the number one place to start a technology business and create more high tech jobs.

Deborah Giles, Vice President, Government Affairs, for Texas Technology Consortium also addressed the committees. She reminded the members that a good tax structure and regulatory environment are essential when companies decide where to invest their capital. That capital is what brings innovation; fuels job growth; and, makes cutting-edge technologies available to consumers and businesses.

She specified the passage of three bills that are having a major impact on driving economic growth by not only attracting investment but also helping to ensure that the investment goes further. One of those, HB 1133, provides rebates on the 6% state portion of sales taxes on broadband and communications equipment. The rebates are capped at $50 million dollars a year, of which the companies making this investment can get a portion.

She brought to the committee's attention that Texas cable companies have invested some $10 billion in this state over the past decade. Also, a major telecommunications company recently announced they have invested more than $6.5 billion in Texas infrastructure in the past three years alone. Ms. Giles stated that because of HB 1133, that investment now goes 6% further annually, or $50 million more a year, than it did before - which means faster broadband, more broadband capacity, and broadband in more places.

Another bill, HB 800, is helping make Texas more economically competitive by establishing a tax credit for research & development (R&D). This will encourage new investment; promote the creation of high-paying jobs; and help make Texas an even more attractive place for companies to invest R&D capital.

Lastly, HB 1223 provides a sales tax exemption for building new, qualified data centers with investments of $200 million dollars or more. Prior to this legislation, Texas was losing large data centers to the 24 other states that offer incentives. Because of HB 1223, Microsoft, LinkedIn, and Chevron decided to make their investments in Texas. That's three new data centers in the first seven months of the exemption's existence for a total investment of approximately $800 million dollars.

According to her testimony, these bills have a major economic impact on our state. To keep this momentum going, and to help keep Texas a global technology leader, Giles encourages the committees to build on these successes, and ensure that the tax structure and regulatory environment in Texas continues to attract, and maximize, capital investment.

Stephanie Simpson, director of legislative affairs for the Texas Association of Manufacturers (TAM), addressed the committee. Similarly to the previous presentations, she stated that the Legislature accomplished a great deal last session to attract even more economic activity related to technology, along with fine-tuning already existing incentives. TAM hosted the coalition for the successful passage of the research & development tax exemption for both the sales and franchise tax. They also worked to extend the Chapter 313, Tax Code, school tax abatement statutes. Chapter 313 is the Texas Economic Development Act which allows for an agreement in which a taxpayer agrees to build or install property and create jobs in exchange for a ten-year limitation on the taxable property value for school district maintenance and operations tax. This incentive is found commonly in most states attempting to attract capital intensive projects that create many direct and indirect jobs. TAM advocated the passage of the aerospace and aviation Freeport Tax Exemption adjustment, as well. These tax incentives are all critical pieces of Texas' ongoing competitiveness plan.

According to Ms. Simpson, the R&D bill will grow the technology-related sectors of nearly every industry and add good paying jobs. The new R&D sales and franchise tax incentives already have several TAM-member companies talking of expansion opportunity here in Texas. She is confident that the state will soon see the fruits of this important legislation.

In her testimony, she said that manufacturing jobs in general remain the most sought-after employment category for any state or country. Despite the strength of Texas' economy and our investment-friendly climate, Texas is not always on top in terms of competitiveness. A recent USA Today article on the growing aerospace industry and its relocation into southern U.S. states does not even list Texas as one of the top ten states for aerospace job growth, despite a huge industry presence here! Recently, Texas lost an expansion project with 300 jobs to Louisiana, where Governor Jindal's team lined up a package worth $10 million to lure a Temple, Texas plastics manufacturer and its headquarters to Webster Parish.

Jim Grice, Lathrop & Gage, LLP, focused his testimony on Data Centers which he said represent the most vibrant, fast-growing sectors in the national economy, with billions invested each year in the U.S. According to his testimony, Data Centers are to the Information Age, what manufacturing was to the Industrial Age. Grice testified that Data Centers require high-tech and sophisticated construction and skilled, high-paid high-tech operators; they invest millions in refreshing their expensive server systems every 3-5 years. A Data Center is essentially "under construction" throughout its life.

According to his testimony, Texas has done well in the Data Center Market to date. However, more than a dozen states have passed progressive legislation within the past few years which threatens to dilute Texas' position in the market place. The most recent example is Arizona passing a 100% sales and use tax exemption that provides a very flexible tool for users that locate in rental Co-location facilities using 500Kw or more. Co-location data center owners and operators typically construct buildings in advance of the tenant making a commitment to occupy the data center and frequently develop this product in a campus style development with multiple buildings to allow development to track with anticipated demand. The total combined spend, inclusive of owners, operators and tenants, at a Co-location data center campus will frequently equal or exceed the single users threshold limits of $200 million established in HB 1223 but will track with user demand to drive the phased build out. Co-Location data centers currently have millions of square feet in Texas and represent more than $1 billion in investment in the State. More importantly, Co-location data centers represent the life blood for expansion of the data center market.

HB 1223 was indeed a good starting framework to exhibit Texas' leadership in the data center industry, but only goes part-way to making Texas one of the most attractive places to locate Data Centers, Grice testified. It created a favorable tax environment for a very large single user category that only represents a small portion of the expected data center expansion.

Bryan Marsh, Digital Realty, stated that the market trend in the data center area is driven by numerous smaller deployments. 70% of the current customer demand for Texas falls within this Mid-Level User category and all of them are looking at alternative sites in states other than Texas. These Mid-Level Users can be very large companies that spend a lot of money on this location decision. The decisions for their site location is typically motivated by a competitive analysis of total costs of operations. A favorable tax framework is key, as stated by Mr. Marsh.

Sylvia Kang, CyrusOne, concurred with previous testimony. She sees more of the Mid-level Users driving more data center activity into the future and agrees that the current threshold criteria set out in HB 1223 are too high to provide any benefit for this Mid-level User. HB 1223 is ignoring the majority of the data center market activity by not pursuing the Mid-level Users. Other states are pursuing them aggressively, according to Kang.

HB 1223 set the capital investment threshold at $200 million over a maximum period of five years, required 20 jobs, and 100,000 sq. ft. of occupancy by a "single occupant". The State forecasted that only one investment of this magnitude would qualify every 15 months, yet in eight months, three qualified applicants were approved. No other state saw this type of success with the large user category. In essence the tax framework adjustment worked as planned. The success of HB 1223 will drive economic benefits as contemplated. Each of the qualified applicants will produce a minimum of $4 million in property taxes.

Shane Menking, Data Foundry, also concurred with the previous data center testimony. He elaborated on a few items, and further explained the co-location industry which is key to what their organization believes is needed. The Co-location industry is built on the ever increasing global trend for companies to outsource their data center operations to companies skilled at operating data centers. The industry is real estate for servers. When tenants are servers, other factors matter. Power and cooling are more important than windows and parking; sales taxes are a major component of cost; and, servers do not have to be in the same city as your people. Outsourcing is a growing trend among enterprises and this trend impacts site location decisions.

Many data center companies target small, medium and large enterprises that do not need or want to build their own large data center, but want the reliability, flexibility and cost savings associated with large data centers. Companies do not have to place their servers in the same city they operate. For instance, Whataburger, Buc-ee's and the Houston Museum of Fine Arts have servers in Austin, whereas those companies are not headquartered in Austin.

Site selection criteria for these companies involve the same decision criteria as large enterprise data centers. Namely, those are cost of co-location, cost of power, and cost of local and state taxes. According to Menking, deals are lost because of sales tax considerations in Texas. Data centers do not just compete with other Texas data center providers. They compete with Arizona, Georgia, Utah, North Carolina, Virginia, and California.

Menking said an unintended consequence of HB 1223 is it created an inadvertent disadvantage for the owners of Co-location facilities. Owners building Co-location data centers take risks by beginning construction activities before securing tenants. They are built in phases. Because the centers are built in advance of having qualifying tenants, all of their costs of construction prior to certification cannot be counted towards the capital investment threshold established in HB 1223. As such, the benefits of HB 1223 cannot be used to attract co-location customers to Texas or keep them from leaving. Other states have passed and are improving existing legislation which provides benefits to both large, enterprise data centers and meet the specific needs of co-location data centers.

FINDINGS AND RECOMMENDATIONS

Data center representatives applauded HB 1223, but suggested adjustments be made to it to maintain and expand Texas' prominence in the data center sector, specifically to capture a larger piece of the data center pie - the mid-level users. Mid-level user clients are sophisticated large organizations that are cost sensitive. Lowering the threshold would allow Texas to gain a larger piece of the data center market and build on recent success.

In summary, the data center representatives stated that the threshold requirements for HB 1223 are too large and only touch a small portion of the industry and miss a majority of the market to the detriment of Texas. Specifically, they suggested that the qualifying data center criteria be changed to encourage qualification by multi-occupant facilities. The capital investment threshold should be reduced for data center qualification; the job creation thresholds should be reevaluated; and the committees should consider expanding the sales tax exemptions available under the program to include local taxes in addition to state sales taxes.

The Texas Association of Manufacturing's (TAM) priority issues in the area of economic development for the 84th Legislature include maintaining and improving Texas economic development incentives and centralizing, at the highest level, all economic development authority and incentives. Thereby allowing one-stop shopping for prospects. TAM states that the ROI far outweighs the investment in economic incentives. TAM suggests examining state and local incentives in specific select industry sectors (aerospace, technology) and matching the competition for these key sectors of the economy.

The committee finds that the state is doing well with its economic development incentives. In making more fully informed decisions on specific legislation, dynamic fiscal notes should be provided to members of the legislature for incentive legislation. Currently, fiscal notes do not take into consideration behavioral changes attributable to the passage of laws. Revenue estimates that consider behavioral changes that might be anticipated from statutory changes would be referred to as dynamic estimates. This is especially important in evaluating tax legislation. Proponents of tax proposals are often disappointed to find that a fiscal note will score a revenue loss for tax credits or exemptions but not attempt to offset the loss by looking at potential stimulus to economic growth from the proposal.

TECHNOLOGY TASK FORCE

BACKGROUND

The Committee was asked to monitor and review the efforts of the Department of Transportation's (TxDOT) Texas Technology Task Force (TTTF). The TTTF was created to identify a path for Texas to follow so that it is strongly positioned to best implement, finance, or otherwise leverage emerging technologies in the near and mid-term with the objectives of addressing congestion, improving safety, and fostering economic development. This necessitates overcoming (1) a lack of awareness of those technologies and their interactions with the transportation system, (2) dated planning and financing mechanisms, and (3) conflicts between new technologies and existing enforcement frameworks. The General Appropriations Act, S.B.1, Eighty-third Legislature, item 44, VII-31 (2013) was passed after the Task Force had been formed and directs TxDOT to oversee a study on transportation technology.

Specifically, TxDOT was charged with examining and evaluating innovative transportation technologies for purposes of cost savings, reducing traffic congestion, enhancing safety, and increasing economic productivity. TxDOT was charged with examining and evaluating innovative transportation technologies to achieve cost savings, reduce traffic congestion, enhance safety, and increase economic productivity. As a result of this charge to TxDOT, the TTTF was created to complete the task. The TTTF was directed to study emerging transportation, communication, and computing technologies and determine physical infrastructure and system components that TxDOT or other state departments would need to provide to enable selected technologies.

The TTTF was formally created in February 2013 and began with an internal core group that sought experts in various transportation technologies to share knowledge and provide direction for the Task Force. The TTTF held three full-day workshops in Austin on April 29, June 12, and July 31, 2013. At each meeting, the internal core group and the panel of experts discussed various technologies and their development status, technology evaluation methods, and the short- and long-term vision for these technologies in Texas. Below is an edited version of the executive summary of the report produced by the Task Force. The House Technology Committee's recommendations have been edited from the Task Force's report, as well. The complete Texas Technology Task Force report is available online at http://library.ctr.utexas.edu/ctr-publications/0-6803-1.pdf

EXECUTIVE SUMMARY

The Texas Department of Transportation (TxDOT) has been directed to examine and evaluate innovative transportation technologies for purposes of cost savings, reducing traffic congestion, enhancing safety, and increasing economic productivity. As a result, the Texas Transportation Task Force (TTTF) was formed, encompassing a group of experts who discussed emerging transportation technologies, their development status, evaluation methods, and the short- and long-term vision for these technologies in Texas. This report summarizes the Task Force findings.

In 2012, there were 3,399 fatalities on Texas roads, with total state crash costs reaching $26 billion. Five Texas cities ranked among the 56 worst nationally in terms of traffic delay, with annual commute-time delays in these cities ranging from 32 to 52 hours. Texas consumed over 15.6 billion gallons of gasoline and diesel fuels in 2009, ranking second nationally. The adoption and diffusion of emerging transportation technologies have the potential to limit crash frequency and severity, enhance mobility for Texas residents while spurring economic growth, and reduce wasted fuel for state residents stuck in traffic.

To these ends, four areas of emerging transportation technology were investigated in this report, including connected vehicles (vehicles able to communicate with other vehicles or roadway infrastructure), autonomous vehicles (also known as automated or self-driving vehicles), electric systems (such as DC fast charging and in-road inductive charging stations), and cloud computing/crowdsourcing technologies (allowing for travelers to access and provide road data, enabling better system management).

The Task Force developed an assessment methodology of each of these technologies using a four-stage process. First, an understanding of technology development phases was developed, as each technology progressed from prototyping to public road testing to initial deployment and commercialization. Next, current (2013) and near-term (2018) technology maturity perspectives were assessed, from the perspective of both TxDOT and potential consumers. While these technologies will likely remain stand-alone applications in the near future, as time progresses the technologies should become integrated—for example, combining increasing degrees of connectivity and automation to enable new joint technology safety and mobility systems. Therefore, an assessment of these joint technology synergies was conducted to understand the potential benefits and new systems that could be enabled.

After this groundwork was completed, two final assessments were conducted. The first evaluated how each technology (or joint technology systems) could serve Texas' statewide goals of economic development; TxDOT's goals of safety enhancement, congestion mitigation, connecting Texas communities, and becoming a best-in-class agency; and USDOT goals of maintaining infrastructure condition, ensuring system reliability, providing environmental sustainability, and reducing project delivery. Issues and concerns were evaluated for each technology or joint technology system as they progressed through development stages, including public agency concerns (institutional, infrastructure, regulatory, policy, and public cost); societal

concerns (safety, energy, and other public concerns [e.g., privacy, disparate income impact, neighborhood concerns, etc.]); and technology-to-market concerns (private cost, time required for development and deployment, and technology concerns).

From this set of evaluations, several conclusions may be drawn. First, near-term benefit-cost ratios are likely the highest for connected vehicle and electric vehicle solutions, from both TxDOT and consumer standpoints. This observation stems from the fact that these technologies are the most advanced in terms of technological and application maturity. Second, autonomous vehicles and joint-technology systems using automation and connectivity have the potential for the greatest long-term benefits, although these technologies and systems also have the greatest costs. As such, future efforts may seek multiple paths in order to quickly take advantage of technologies and systems that are or will be ready within a short timeframe, while also planning for future developments in order to seize those truly large opportunities as they emerge.

The Task Force also identified five key enablers to help eliminate non-technical barriers and promote technology development. TxDOT could help provide a rich data environment to technology developers, allowing them to harness data in order to accelerate service delivery. A conducive testing environment should be fostered, including the potential temporary provision of infrastructure to technology developers for testing on closed systems, as well as consideration of measures for regulatory reform transportation and technology-based project streamlining. Public relations efforts would likely be necessary to attract new companies involved in emerging transportation technologies, as well as private capital to fund such efforts and public outreach to garner valuable public input. Limited funding for these efforts will also be necessary, although the Task Force anticipates that the majority of technology development and deployment will be funded and conducted by private entities. Finally, the Task Force envisions that these efforts will be spearheaded by a public-private partnership, involving government agency, research institute, and industry collaborations.

With this evaluation in hand, the Task Force developed a vision for moving forward, identifying four implementation strategies to be conducted over the next 5 years:

1) Incubator – Create an organization to act as a technology incubator focused on disruptive transportation technologies. The key differentiator for this incubator is the public partnership with TxDOT where ideas and innovations can be tested and proven in a real-world environment. Technology support services and resources may be offered to emerging technology partners.

2) Public-Private Partnership – Utilize range of approaches to creating an organizational structure that facilitates economic development in emerging industries via collaboration and coordination among the public, private, and not-for-profit/academic sectors. Such partnerships will create intellectual capital and technology that can be shared to the common benefit or focus on bringing new and evolving technologies to market.

3) Pilot Program – Conduct a pilot program within Texas to encourage and enable the development of new transportation technologies. The pilot program would collect specific data through testing for evaluating alternatives to the regulations, or create

innovative approaches to safety and ensure that the safety performance goals of the regulations are satisfied for a preselected technology.

4) Legislative and Regulatory Changes – Identify regulatory and legislative barriers to emerging transportation technologies, and provide support on how to address them. If pursued, these actions should help make Texas a leader in the development and commercialization of emerging and ultimately disruptive transportation technologies. These actions should further the state's economic development, and ultimately lead to a safe, efficient, seamless, and enjoyable transportation system.

Texans are privileged to have a dynamic economy, growing population, and vibrant culture. Texas also has increasing levels of congestion, a critical need to find more efficient ways to move commodities, and an obligation to find ways to make travel safer, all in an environment of stagnant-to-declining revenue streams and increasing costs. The TTTF was created to identify a path for Texas to follow so that it is strongly positioned to best implement, finance, or otherwise leverage emerging technologies in the near and mid-term with the objectives of addressing congestion, improving safety, and fostering economic development.

Adoption of transportation technology, information technology (IT), and communication technology entails the use of new hardware, software, applications, and communications in all aspects of TxDOT's operations, including transactions that are inter- and intra-agency, and with consumers. Given the potential benefits of technology investment, emerging technology adoption and diffusion in Texas should be encouraged. At least four major external trends align to support this encouragement.

1. Texas' role in the global marketplace should only grow over time, as the economy continues to move toward higher value-added production and services. The transformation of Texas from a commodity producer to a center of knowledge and technology is virtually complete, notwithstanding the recent surge in energy production. Until recently, the structure of the Texas economy was similar in many ways to that of a developing nation: the state sold basic products such as food and energy, and tended to purchase more sophisticated manufactured goods. That trend has been turned upside down in recent years, as Texas has become a center of research, advanced technology, and high value-added services.

2. Rapid population growth relative to the rest of the nation will likely characterize Texas over the next 30 years. Three main factors influencing the Texas demographics landscape over the coming decades are relatively high birthrates, in-migration, and an aging population—with each factor creating new challenges for the public sector. Strong overall population growth will place greater strain on an already overstressed road and highway network, as well as prompting continued interest in alternative forms of transportation.

3. The physical character of Texas communities will continue to evolve. The traditional model of community development is changing. Urban areas in Texas have long been

characterized by relatively low density, as abundant land fostered spread-out cities that relied almost exclusively on the automobile. In recent years, the rate of population and traffic growth has outstripped the road system in many areas, leading to increased congestion. Partially as a result, many communities are now focusing on "traditional" neighborhood design. The defining characteristics of this development approach are walkability or pedestrian-oriented design; transportation options; a mix of land uses that integrate housing, shops, civic facilities, and work places; and maintenance or creation of green space.

4. Providing adequate funding of basic infrastructure, including the transportation network, has become increasingly challenging. As a result, the focus has shifted toward alternatives to traditional general obligation debt financing of basic infrastructure, with a greater emphasis on tolls, tax-increment financing, development fees, and other alternative financing structures.

Collectively, these factors will require Texas to leverage its existing transportation infrastructure as efficiently as possible, as continued growth runs head on into evolving development patterns and constrained resources. Meanwhile, the nature and scope of the state's infrastructure is changing. Much of the modern economy's development can be traced to the implementation of networks: highways, rail, telecommunications, and energy. The ability to efficiently move goods, people, capital, energy, and ideas continues to transform the way humans live, work, and play.

Throughout history, transportation was the first network system to be comprehensively deployed, with improvements in the movement of goods and people preceding every stage of urbanization. As outlined by Dr. John Kasarda of the University of North Carolina, transportation was a critical ingredient in the four major waves of industrialization that have occurred to date:

- The first great cities developed around seaports and along trade routes.
- The second wave of development—and the beginning of the Industrial Revolution—occurred when factories used canals and rivers for power and shipping.
- The third wave of industrial development started with the railroad system, which opened up landlocked resources.
- The fourth wave of development began with massive investments in highway infrastructure that increased traffic, expanded personal mobility, and accelerated metropolitan growth.

According to the Federal Highway Administration, the current (fifth) wave of industrialization is based on innovations in logistics and manufacturing. Increasingly, components are manufactured offshore, and are then assembled into finished products near the point of their final consumption or use. This business model depends strongly on a fast and reliable transportation network that minimizes the cost of production. Just as highway infrastructure made the fourth wave possible in the United States, the country's current performance depends heavily on a seamless, intermodal transportation system.

While the future is somewhat uncertain, the sixth wave might well entail the integration of different types of networks into a seamless and invisible underpinning for the movement of

goods and people. In particular, the nascent efforts in developing connected and autonomous vehicles and smart grids, as well as a general orientation toward minimizing and ultimately removing human beings from a direct operational role in transportation, promises a range of social and economic benefits. It is the promise of these benefits, along with the economic gains associated with first-mover advantage and the pressures outlined above, that make the exploration of better integrating technology and transportation such a timely issue for Texas.

RECOMMENDATIONS

TxDOT was charged with examining and evaluating innovative transportation technologies to achieve cost savings, reduce traffic congestion, enhance safety, and increase economic productivity. At this time, more research and study is needed to complete this task. Once the next steps are completed, any legislative or regulatory requests can be considered. In going forward, the committee finds that the TTTF should seek to collaborate with all Texas universities researching transportation technology issues.

The next steps, as reported by the TTTF, is an effort to go "narrower and deeper". The next phase of the TTTF work plans will yield a business plan that is expected to include a four-pronged detailed implementation strategy: 1) create an incubator; 2) form a research consortium; 3) implement a pilot project that showcases a key technology; and 4) identify legislative and/or regulatory changes that are necessary to support transportation technology commercialization. These four implementation strategies identified in the vision are described in more detail below.

CREATE AN INCUBATOR

Create an organization to act as a technology incubator focused on disruptive transportation technologies. The key differentiator for this incubator is the public partnership with TxDOT where ideas and innovations can be tested and proven in a real-world environment. The ultimate goal is to seed and foster growth of a Texas-based industry cluster in this space, via both recruitment and development of firms. TxDOT may need to reach out to university partners with the TTTF in creating an incubator.

The combination of focused resources provided by the incubator, formal access to TxDOT, and the highly competitive business climate provided by the State of Texas could result in the leading effort to develop disruptive transportation technology enterprises in the U.S. and potentially the world.

RESEARCH CONSORTIA

There are a range of approaches to creating an organizational structure that facilitates economic development in emerging industries via collaboration and coordination among the public, private, and not-for-profit/academic sectors. In particular, most organizations will fall into one of two broad areas of emphasis: 1) research consortia, which collaborate to create intellectual capital and technology that can be shared to the common benefit; and 2) incubators/commercialization efforts, which focus on bringing new and evolving technologies to market. Texas has several examples of both.

PILOT PROGRAM OPTIONS

As part of the TTTF vision for encouraging and enabling new transportation technologies, an emerging technology pilot program may be adopted. The pilot program would collect specific data through testing for evaluating alternatives to the regulations, or create innovative approaches to safety and ensure that the safety performance goals of the regulations are satisfied.

Partners in the pilot program would work with appropriate state agencies to develop a comprehensive plan for the pilot program that would be designed to achieve the intended goals. Considerations for pilot studies would include feasibility, time, cost, public safety and adverse events, etc. The program would provide valuable information and prediction of performance of full scale technology deployment.

LEGISLATIVE AND REGULATORY CHANGES TO SUPPORT TRANSPORTATION TECHNOLOGIES

Regulatory and legislative barriers that may be addressed to encourage and enable new technologies may include (but are not limited to) vehicle permitting and testing, insurance and liability, equipment certification, operation certification, requirements on accident reporting, licensing, driver requirements, performance standards and monitoring, data ownership, data security, data ownership, etc.

The following may be necessary partners with the TTTF in addressing regulatory and legislative barriers: TxDOT, Texas A&M Transportation Institute, Texas Department of Public Safety, Texas Department of Insurance, Texas Commission on Environmental Quality, the NHTSA, and automobile manufacturers, technology and industry experts, and the public.

APPENDIX A

National Association of Attorneys General

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February 24, 2014

The Honorable Patrick Leahy
Chairman, Committee on the Judiciary
United States Senate
224 Dirksen Senate Office Building
Washington, D.C. 20510

The Honorable Chuck Grassley
Ranking Member, Committee on the Judiciary
United States Senate
224 Dirksen Senate Office Building
Washington, D.C. 20510

The Honorable John D. Rockefeller IV
Chairman, Committee on Commerce, Science and Transportation
United States Senate
254 Russell Senate Office Building
Washington, D.C. 20510

The Honorable John Thune
Ranking Member, Committee on Commerce, Science and Transportation
United States Senate
254 Russell Senate Office Building
Washington, D.C. 20510

Dear Chairman Leahy, Ranking Member Grassley, Chairman Rockefeller, and Ranking Member Thune:

We, the Attorneys General of 42 states,[1] write to express our support of your efforts to enact bipartisan patent reform legislation, and to share our concerns with the currently proposed S. 1720 and the recently passed H.R. 3309. So-called patent trolls stifle innovation and harm our economy by making dubious claims of patent infringement and using the threat of expensive litigation to extort money from small businesses and nonprofits. We have received many complaints from these businesses and nonprofits, our constituents, who are desperate for relief from the misuse of the patent system. While these threats were once focused on tech businesses, they are now levied at all manner of businesses, including banks, hospitals, restaurants and hotels.

Our offices have responded to these complaints by launching investigations and bringing enforcement actions against patent trolls, which have threatened thousands of businesses and non-profits for their use of common, everyday technology such as scanners and Wi-Fi networks. Our authority to protect businesses derives primarily from state statutes that prohibit unfair and deceptive acts. Though any patent holder has a right to fight infringement, it may not do so in a manner that is unfair or deceptive.

We are encouraged by your attempts to enact patent reform, but would like Congress to consider amendments to address the following:

1. **Confirmation of state enforcement authority.** We support the provision in S. 1720 which expressly prohibits unfair and deceptive demand letters and would clarify the Federal Trade Commission's authority to prohibit bad-faith demand letters. However, federal legislation should also confirm the concurrent authority of state attorneys general to bring the same types of enforcement actions under state law. State attorneys general work closely with the FTC on many consumer protection matters and generally have the same authority to protect consumers and bring enforcement actions. In many states, the interpretation of state law and its enforcement expressly track federal law. H.R. 3309's study on demand letters is important to understanding what is occurring, but a study by itself does not provide adequate, timely relief for the serious problem that small businesses around the country currently face – the threat of immediate litigation for failing to pay often unfounded and exorbitant licensing fees.

2. **Clarification of state-court jurisdiction over bad-faith demand letters.** Patent trolls typically argue that sending demand letters into a state – even misleading or deceptive demand letters – is insufficient to support a finding of personal jurisdiction in the courts of that state. That argument is flatly inconsistent with longstanding interpretations of state consumer protection laws and the due process requirements for actions brought under those laws. Federal legislation should confirm that state courts have personal jurisdiction over entities that direct unfair or deceptive patent demand letters into the state.

3. **Transparency for patentees that send demand letters.** We support any efforts to increase transparency in the patent enforcement process, as sunlight and transparency may deter the worst abusers of our patent laws. However, the key transparency provisions in S. 1720 and H.R. 3309 apply only when a patentee files a civil action alleging infringement. That is too late. Patent trolls often succeed in extracting licensing fees and settlements before any litigation is filed. Instead, disclosure should be required of all those with a financial interest in the patent at the time a patent demand letter is sent.

4. **Patent litigation reform.** One reason that the patent troll business model is successful is that the cost of patent litigation usually far outstrips the cost of a settlement. Though our focus is primarily on addressing patent trolling from a consumer protection standpoint, often centering on demand letters, we recognize the importance of pending Congressional legislation on this issue. We are generally supportive of structural federal patent litigation reform which would create an environment in which abusers of the patent enforcement system cannot thrive.

Again, thank you for your continuing leadership in maintaining the quality and effectiveness of our patent system. We look forward to working with you in the effort to deter the bad actors who are exploiting the system for undeserved gain.

Sincerely,

(SIGNED BY 42 State Attorneys General)

[1] Alabama, Alaska, Arizona, Arkansas, Colorado, Connecticut, Florida, Guam, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Mexico, New York, North Carolina, North Dakota, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, and Wyoming.

APPENDIX B

TEXAS LEGISLATIVE COUNCIL

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DAVID DEWHURST
Lieutenant Governor
Joint Chair

JEFF ARCHER
Interim Assistant Executive Director

JOE STRAUS
Speaker of the House
Joint Chair

MEMORANDUM

TO: The Honorable Gary Elkins
Chair, House Committee on Technology

FROM: Anne Peters
Senior Legislative Counsel

DATE: April 17, 2014

SUBJECT: State Authority to Address Alleged Abuses in the Assertion of Patent Infringement

INTRODUCTION

Concerns have arisen regarding the proliferation of entities formed to acquire patents for the sole purpose of making claims of patent infringement against businesses and other persons in Texas and other states. Faced with the possibility of expensive litigation, many of the persons against whom the claims are made settle out of court with, or obtain licenses from, these "non-practicing entities," even in circumstances where the claims are dubious. States have begun to explore state-law methods to curb this potential abuse of the patent system. However, enforcement of patent rights is governed by federal law. This memorandum discusses whether the Texas Legislature has any authority to act in this area.

SUMMARY

It is unclear what state action would be effective in curbing the potential abuses of patent enforcement. Disputes over patent ownership and rights are within the exclusive jurisdiction of federal courts. Federal courts regularly use the federal preemption doctrine to strike down state laws that conflict with federal patent laws and the policies contained in those federal laws. However, a showing that a person seeking to enforce a patent does so in bad faith may bring conduct relating to patent enforcement into the realm of state regulation.

DISCUSSION

I. Non-Practicing Entities in the Business of Patent Enforcement

Rather than using their patents commercially, an increasing number of patent owners are capitalizing on their patents solely through licensing and litigation.[1] The entities that are doing this are called "patent assertion entities" or "non-practicing entities" and in some cases are derogatively referred to as "patent trolls." The focus of a certain type of non-practicing entity is to obtain patents that are applied broadly "across a particular industry," identify potential infringers of those patents, and offer those alleged infringers licensing of the patent or settlement of filed or threatened litigation.[2] Unlike a traditional patent enforcement plaintiff, a non-practicing entity usually sues between 5 and 30 defendants at one time for alleged infringement of the same patent, which has led to a substantial increase in the number of patent infringement lawsuits brought in Texas and other states.[3] Businesses and other persons targeted by these non-practicing entities complain that the patent infringement claims are often questionable. Because of the high costs of litigation, especially discovery, it is often in the interests of both parties to settle; this has led some to contend that non-practicing entities suing or threatening to sue to enforce patents are taking unfair advantage of the federal patent system.[4]

II. Enforcement of Patents Governed by Federal Law

Clause 8, Section 8, Article I, of the United States Constitution gives Congress the power "[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries." Commonly known as the "Patent Clause," this is the constitutional underpinning of federal patent law.

Federal law may preempt related state regulation to the extent the state law poses "an obstacle to the accomplishment and execution of the full purposes and objectives of Congress."[5]

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[1] Ahmed J. Davis and Karolina Jesien, *The Balance of Power in Patent Law: Moving Towards Effectiveness in Addressing Patent Troll Concerns*, 22 Fordham Intell. Prop. Media & Ent. L.J. 835, 835-836 (2012); Agency Information Collection Activities to Patent Assertion Entities, 78 Fed. Reg. 61,352 (October 3, 2013).

[2] Davis and Jesien, *supra* note 1, at 836.

[3] John P. Hanish, *Effectively Defending Against Patent Trolls and the Effects of Increasing Troll Litigation on Patent Law and Patent Dispute Procedures*, in The Impact of Recent Patent Law Cases and Developments, 1, 5 (2014 ed.); *see also* T. Christian Landreth, *The Fight Against "Patent Trolls:" Will State Law Come to the Rescue?*, 15 N.C. J.L. & Tech. On. 100, 103 (2014) ("The NPE [non-practicing entity] business model is to send demand letters to organizations offering licenses at a price low enough to make fighting infringement claims economically irrational.").

[4] *See* Letter from Attorneys General Jon Bruning and William H. Sorrell to state attorneys general (February 3, 2014) (stating, in the attached proposed draft letter to the chairs and certain members of the U.S. Senate Judiciary and Commerce Committees, that "[s]o-called patent trolls stifle innovation and harm our economy by making dubious claims of patent infringement and using the threat of expensive litigation to extort money from small businesses and nonprofits."); Davis and Jesien, *supra* note 1, at 837.

[5] *See, e.g., Hines v. Davidowitz*, 312 U.S. 52, 67 (1941).

Courts regularly use the federal preemption doctrine to strike down state laws that conflict with the federal patent laws or the policies contained in those federal laws. In *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, for example, the United States Supreme Court stated that its "past decisions have made clear that state regulation of intellectual property must yield to the extent that it clashes with the balance struck by Congress in our patent laws."[6] Under this general preemption standard, the United States Court of Appeals for the Federal Circuit in *Zenith Elecs. Corp. v. Exzec., Inc.* has held that a person who asserts patent rights in good faith may not be made subject to state tort liability because the state action is preempted by federal patent law.[7] In *Globetrotter Software, Inc. v. Elan Computer Group, Inc.*, the federal circuit court reaffirmed its decision in *Zenith* by holding that state law claims against a person asserting patent infringement in pre-litigation communications can survive federal preemption only to the extent those claims are based on a showing of "bad faith" in asserting the claim.[8]

Under these cases state tort law may provide for liability for the assertion of patent rights in communications warning about potential litigation, but only if there is a showing that those assertions are made in bad faith. Applying the bad faith requirement, the federal circuit court in *Globetrotter* held that only "objectively baseless allegations of infringement" can give rise to state tort liability.[9] The court explained that its decision protecting good faith patent claims is based not only on federal preemption over conflicting state law, but also on the First Amendment freedom of speech right of a patent holder to communicate with an alleged infringer about potential litigation and to negotiate a license to use a patent, free from prior restraints on that speech.[10] To satisfy *Globetrotter*'s "objectively baseless" standard, it must be proved that "no reasonable litigant could realistically expect success on the merits."[11]

III. Potential Use of State Unfair Competition and Deceptive Trade Practices Statutes to Address Alleged Patent Trolling

Zenith and *Globetrotter* involved parties attempting to obtain relief against patent holders for alleged bad faith conduct by applying existing state laws prohibiting unfair competition.[12] The attorneys general of Vermont and Nebraska have taken action against patent assertion

[6] 489 U.S. 141, 152 (1989).

[7] 182 F.3d 1340, 1355 (Fed. Cir. 1999). The United States Court of Appeals for the Federal Circuit is the court with exclusive appellate jurisdiction over patent law cases. *See* 28 U.S.C. Section 1295(a).

[8] 362 F.3d 1367, 1374 (Fed. Cir. 2004) "[*B*]*ad faith* must be alleged and ultimately proven, even if bad faith is not otherwise an element of the tort claim." (quoting *Zenith*, 182 F.3d at 1355).

[9] *See Globetrotter* 362 F.3d at 1377 ("[F]ederal patent laws preempt state laws that impose tort liability for a patentholder's good faith conduct in communications asserting infringement of its patent and warning about potential litigation.").

[10] *Id.*

[11] *Id.* at 1376 (quoting *Prof'l Real Estate Investors, Inc. v. Columbia Pictures Indus., Inc.*, 508 U.S. 49, 57 (1993)).

[12] *See Zenith* 182 F.3d at 1355; *Globetrotter* 362 F.3d at 1374.

entities under existing state consumer protection laws.[13] Such claims, however, would still be subject to challenge under the federal preemption doctrine.

IV. "Threats Action" Statute as Potential State-Law Solution

Vermont has enacted the first state law to specifically address the "patent trolling" issue.[14] The Vermont statute prohibits a person from making "a bad faith assertion of patent infringement"[15] and creates a cause of action known as a "threats action," which the recipient of a legal threat can bring against a person who wrongfully asserts legal rights.[16] The statute creates a cause of action based on pre-litigation conduct, in contrast to more common tort reform measures, which affect lawsuits that have already been filed.[17] Many other states are also enacting or considering legislation that would prohibit bad faith assertions of patent infringement.[18]

In the absence of a definite decision by the United States Supreme Court regarding federal preemption of state regulation in this particular area, legal scholars disagree as to whether the Vermont bill and other similar state legislative efforts can avoid federal preemption. Some

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[13] *See Vermont and Nebraska Attorneys General Take Patent Trolls Head On*, NAA Gazette, http://www.naag.org/vermont-and-nebraska-attorneys-general-take-patent-trolls-head-on.php.

[14] *See* Eric Goldman, *Vermont Enacts the Nation's First Anti-patent Trolling Law*, *Forbes* (May 22, 2013), http://www.forbes.com/sites/ericgoldman/2013/05/22/vermont-enacts-the-nations-first-anti-patent-trolling-law; Landreth, *supra* note 3, at 115.

[15] Vt. Stat. Ann. tit. 9, § 4197 (West 2013).

[16] *See* Goldman, *supra* note 14.

[17] *See id.*

[18] *See Attorneys General Join Legislators in Pushing Patent Trolls Back Under Bridges* (March 7, 2014), http://congress.org/2014/03/07/attorneys-general-join-legislators-in-pushing-patent-trolls-back-under-bridges. The article describes the following states' actions:

- Kentucky SB 116 passed the senate on February 25 and is pending in the House Judiciary Committee. The bill would make bad faith assertion of patent infringement a violation of the state's consumer protection law.
- Maine LD 1660 is currently pending in the Joint Judiciary Committee. It would allow victims of patent trolls to bring forth civil suit in order to recoup losses caused by bad faith assertions of patent infringement.
- In Minnesota, the state's attorney general has issued a "stay-away" order to the largest and most egregious patent troll, MPHJ Technology Investments, LLC.
- Nebraska's attorney general has warned patent trolls operating in the state, and legislation that would prohibit them, LB 677, is pending in the House Judiciary Committee.
- New Jersey AB 2462 would prohibit making bad faith assertions of patent infringement. The bill is pending in the Assembly Commerce and Economic Development Committee.
- New York's attorney general reached a deal with MPHJ to create new guidelines to assure patent claims to not use improper tactics.
- Oregon SB 1540 was signed by Democratic governor John Kitzhaber on March 3 and took effect immediately. This new law prohibits bad faith claims of patent infringement.
- South Carolina also has a bill pending in the House Judiciary Committee, HB 4629, which would make it an unlawful trade practice to make a bad faith assertion of patent infringement.

argue that these state efforts are themselves preempted because they ultimately interfere with the federal government's exclusive power to regulate patent claims.[19] Other scholars disagree, arguing that the Vermont statute will withstand federal preemption scrutiny because it has been carefully drafted to comply with the federal circuit court's "objectively baseless" standard for determining whether a patent assertion has been made in bad faith.[20] In addition, arguments can be made that as a policy matter, it is undesirable to have states regulating intellectual property issues.[21] There may also be claims that prohibiting a patent owner from notifying another person of a forthcoming lawsuit violates the First Amendment as a prior restraint of speech.[22] In contravention of the purposes of these threats action statutes and other existing statutes used by states to address the "patent troll" issue, a state suing an entity for a violation of the state's statute may even find itself defending against a motion for sanctions for filing a frivolous lawsuit that cannot succeed on the merits.[23]

Therefore, because such state solutions are relatively new and novel, the federal courts have yet to rule on the inevitable federal preemption issue. While the Texas Legislature could consider enacting its own version of a threats action statute to address patent trolling, it is impossible to predict with certainty whether such a statute would be effective in curbing allegedly abusive "patent trolling" activities or whether it would be held invalid under the federal preemption doctrine.

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[19] *See* Goldman, *supra* note 14.

[20] *See* Camilla A. Hrdy, *What Is Happening in Vermont? Patent Reform From the Bottom Up* (May 27, 2013), http://patentlyo.com/patent/2013/05/what-is-happening-in-vermont-patent-law-reform-from-the-bottom-up.html;
Landreth, *supra* note 3, at 7-9.

[21] *See* Goldman, *supra* note 14 (arguing that "it would be troublesome if states adopt inconsistent or different legal standards for threats actions; it becomes exponentially more expensive for IP owners to enforce their rights when they have to research and comply with multitudinous state laws").

[22] *See Globetrotter* 362 F.3d at 1377. Globetrotter was recently cited in a Nebraska case enjoining the attorney general for the state of Nebraska from enforcing a cease and desist order prohibiting patent infringement
enforcement efforts under that state's unfair competition and deceptive trade statutes. The United States District Court for the District of Nebraska found that the cease and desist order operated as a prior restraint on the patent owner's speech and association rights. *See Activision TV, Inc. v. Pinnacle Bancorp, Inc.*, No. 8:13CV215 (D. Neb. Sept. 30, 2013).

[23] Ryan Davis, *Patent Troll Calls Vt. AG's Suit a Sham, Seeks Sanctions* (February 10, 2014), http://www.law360.com/articles/508591. *See also* Ryan Davis, *Vt. AG Drops Bid to Get 'Patent Troll' Threats*
Barred (March 10, 2014), http://www.law360.com/articles/516913.

APPENDIX C

- Current as of March 19, 2014 (General Order 14-6)

APPENDIX B
PATENT RULES

1. SCOPE OF RULES

1-1. Title.

These are the Rules of Practice for Patent Cases before the Eastern District of Texas. They should be cited as "P. R. __."

1-2. Scope and Construction.

These rules apply to all civil actions filed in or transferred to this Court which allege infringement of a utility patent in a complaint, counterclaim, cross-claim or third party claim, or which seek a declaratory judgment that a utility patent is not infringed, is invalid or is unenforceable. The Court may accelerate, extend, eliminate, or modify the obligations or deadlines set forth in these Patent Rules based on the circumstances of any particular case, including, without limitation, the complexity of the case or the number of patents, claims, products, or parties involved. If any motion filed prior to the Claim Construction Hearing provided for in P. R. 4-6 raises claim construction issues, the Court may, for good cause shown, defer the motion until after completion of the disclosures, filings, or ruling following the Claim Construction Hearing. The Civil Local Rules of this Court shall also apply to these actions, except to the extent that they are inconsistent with these Patent Rules. The deadlines set forth in these rules may be modified by Docket Control Order issued in specific cases.

1-3. Effective Date.

These Patent Rules shall take effect on February 22, 2005 and shall apply to any case filed thereafter and to any pending case in which more than 9 days remain before the Initial Disclosure of Asserted Claims is made. The parties to any other pending civil action shall meet and confer promptly after February 22, 2005, for the purpose of determining whether any provision in these Patent Rules should be made applicable to that case. No later than 7 days after the parties meet and confer, the parties shall file a stipulation setting forth a proposed order that relates to the application of these Patent Rules. Unless and until an order is entered applying these Patent Local Rules to any pending case, the Rules previously applicable to pending patent cases shall govern.

2. GENERAL PROVISIONS

2-1. Governing Procedure.

(a) Initial Case Management Conference. Prior to the Initial Case Management Conference with the Court, when the parties confer with each other pursuant to Fed.R.Civ.P. 26(f), in addition to the

matters covered by Fed.R.Civ.P. 26, the parties must discuss and address in the Case Management Statement filed pursuant to Fed.R.Civ.P. 26(f), the following topics:

(1) Proposed modification of the deadlines provided for in the Patent Rules, and the effect of any such modification on the date and time of the Claim Construction Hearing, if any;

(2) Whether the Court will hear live testimony at the Claim Construction Hearing;

(3) The need for and any specific limits on discovery relating to claim construction, including depositions of witnesses, including expert witnesses;

(4) The order of presentation at the Claim Construction Hearing; and

(5) The scheduling of a Claim Construction Prehearing Conference to be held after the Joint Claim Construction and Prehearing Statement provided for in P. R. 4-3 has been filed.

(6) Whether the court should authorize the filing under seal of any documents containing confidential information.

(b) Further Case Management Conferences. To the extent that some or all of the matters provided for in P. R. 2-1 (a)(1)-(5) are not resolved or decided at the Initial Case Management Conference, the parties shall propose dates for further Case Management Conferences at which such matters shall be decided.

(c) **Electronic Filings.** All patents attached as exhibits to any filing submitted electronically shall be in searchable PDF format. Any other documents attached as exhibits to any filing submitted electronically should be in searchable PDF format whenever possible.

2-2. Confidentiality.

If any document or information produced under these Patent Local Rules is deemed confidential by the producing party and if the Court has not entered a protective order, until a protective order is issued by the Court, the document shall be marked “confidential” or with some other confidential designation (such as “Confidential B Outside Attorneys Eyes Only”) by the disclosing party and disclosure of the confidential document or information shall be limited to each party’s outside attorney(s) of record and the employees of such outside attorney(s).
If a party is not represented by an outside attorney, disclosure of the confidential document or information shall be limited to one designated “in house” attorney, whose identity and job functions shall be disclosed to the producing party 5 days prior to any such disclosure, in order to permit any motion for protective order or other relief regarding such disclosure. The person(s) to whom disclosure of a confidential document or information is made under this local rule shall keep it confidential and use it only for purposes of litigating the case.

2-3. Certification of Initial Disclosures.

All statements, disclosures, or charts filed or served in accordance with these Patent Rules must be dated and signed by counsel of record. Counsel’s signature shall constitute a certification that to the best of his or her knowledge, information, and belief, formed after an inquiry that is reasonable under the circumstances, the information contained in the statement, disclosure, or chart is complete and correct at the time it is made.

2-4. Admissibility of Disclosures.

Statements, disclosures, or charts governed by these Patent Rules are admissible to the extent permitted by the Federal Rules of Evidence or Procedure. However, the statements or disclosures provided for in P. R. 4-1 and 4-2 are not admissible for any purpose other than in connection with motions seeking an extension or modification of the time periods within which actions contemplated by these Patent Rules must be taken.

2-5. Relationship to Federal Rules of Civil Procedure.

Except as provided in this paragraph or as otherwise ordered, it shall not be a legitimate ground for objecting to an opposing party's discovery request (e.g., interrogatory, document request, request for admission, deposition question) or declining to provide information otherwise required to be disclosed pursuant to Fed.R.Civ.P. 26(a)(1) that the discovery request or disclosure requirement is premature in light of, or otherwise conflicts with, these Patent Rules. A party may object, however, to responding to the following categories of discovery requests (or decline to provide information in its initial disclosures under Fed.R.Civ.P. 26(a)(1)) on the ground that they are premature in light of the timetable provided in the Patent Rules:

(a) Requests seeking to elicit a party's claim construction position;

(b) Requests seeking to elicit from the patent claimant a comparison of the asserted claims and the accused apparatus, product, device, process, method, act, or other instrumentality;

(c) Requests seeking to elicit from an accused infringer a comparison of the asserted claims and the prior art; and

(d) Requests seeking to elicit from an accused infringer the identification of any opinions of counsel, and related documents, that it intends to rely upon as a defense to an allegation of willful infringement.

Where a party properly objects to a discovery request (or declines to provide information in its initial disclosures under Fed.R.Civ.P. 26(a)(1)) as set forth above, that party shall provide the requested information on the date on which it is required to provide the requested information to an opposing party under these Patent Rules, unless there exists another legitimate ground for objection.

2-6. **Assignment of Related Cases.** Separately filed cases related to the same patent shall be assigned to the same judge, i.e., the judge assigned to the first related case.

3. PATENT INITIAL DISCLOSURES

3-1. Disclosure of Asserted Claims and Infringement Contentions.

Not later than 10 days before the Initial Case Management Conference with the Court, a party claiming patent infringement must serve on all parties a "Disclosure of Asserted Claims and

Infringement Contentions." Separately for each opposing party, the "Disclosure of Asserted Claims and Infringement Contentions" shall contain the following information:

(a) Each claim of each patent in suit that is allegedly infringed by each opposing party;

(b) Separately for each asserted claim, each accused apparatus, product, device, process, method, act, or other instrumentality ("Accused Instrumentality") of each opposing party of which the party is aware. This identification shall be as specific as possible. Each product, device, and apparatus must be identified by name or model number, if known. Each method or process must be identified by name, if known, or by any product, device, or apparatus which, when used, allegedly results in the practice of the claimed method or process;

(c) A chart identifying specifically where each element of each asserted claim is found within each Accused Instrumentality, including for each element that such party contends is governed by 35 U.S.C. § 112(6), the identity of the structure(s), act(s), or material(s) in the Accused Instrumentality that performs the claimed function;

(d) Whether each element of each asserted claim is claimed to be literally present or present under the doctrine of equivalents in the Accused Instrumentality;

(e) For any patent that claims priority to an earlier application, the priority date to which each asserted claim allegedly is entitled; and

(f) If a party claiming patent infringement wishes to preserve the right to rely, for any purpose, on the assertion that its own apparatus, product, device, process, method, act, or other instrumentality practices the claimed invention, the party must identify, separately for each asserted claim, each such apparatus, product, device, process, method, act, or other instrumentality that incorporates or reflects that particular claim.

3-2. Document Production Accompanying Disclosure.

With the "Disclosure of Asserted Claims and Infringement Contentions," the party claiming patent infringement must produce to each opposing party or make available for inspection and copying:

(a) Documents (e.g., contracts, purchase orders, invoices, advertisements, marketing materials, offer letters, beta site testing agreements, and third party or joint development agreements) sufficient to evidence each discussion with, disclosure to, or other manner of providing to a third party, or sale of or offer to sell, the claimed invention prior to the date of application for the patent in suit. A party's production of a document as required herein shall not constitute an admission that such document evidences or is prior art under 35 U.S.C. ' 102;

(b) All documents evidencing the conception, reduction to practice, design, and development of each claimed invention, which were created on or before the date of application for the patent in suit or the priority date identified pursuant to P. R. 3-1(e), whichever is earlier; and

(c) A copy of the file history for each patent in suit. The producing party shall separately identify by production number which documents correspond to each category.

3-3. Invalidity Contentions.

Not later than 45 days after service upon it of the "Disclosure of Asserted Claims and Infringement Contentions," each party opposing a claim of patent infringement, shall serve on all parties its "Invalidity Contentions" which must contain the following information:

(a) The identity of each item of prior art that allegedly anticipates each asserted claim or renders it obvious. Each prior art patent shall be identified by its number, country of origin, and date of issue. Each prior art publication must be identified by its title, date of publication, and where feasible, author and publisher. Prior art under 35 U.S.C. § 102(b) shall be identified by specifying the item offered for sale or publicly used or known, the date the offer or use took place or the information became known, and the identity of the person or entity which made the use or which made and received the offer, or the person or entity which made the information known or to whom it was made known. Prior art under 35 U.S.C. § 102(f) shall be identified by providing the name of the person(s) from whom and the circumstances under which the invention or any part of it was derived. Prior art under 35 U.S.C. § 102(g) shall be identified by providing the identities of the person(s) or entities involved in and the circumstances surrounding the making of the invention before the patent applicant(s);

(b) Whether each item of prior art anticipates each asserted claim or renders it obvious. If a combination of items of prior art makes a claim obvious, each such combination, and the motivation to combine such items, must be identified;

(c) A chart identifying where specifically in each alleged item of prior art each element of each asserted claim is found, including for each element that such party contends is governed by 35 U.S.C. ' 112(6), the identity of the structure(s), act(s), or material(s) in each item of prior art that performs the claimed function; and

(d) Any grounds of invalidity based on indefiniteness under 35 U.S.C. ' 112(2) or enablement or written description under 35 U.S.C. ' 112(1) of any of the asserted claims.

3-4. Document Production Accompanying Invalidity Contentions.

With the "Invalidity Contentions," the party opposing a claim of patent infringement must produce or make available for inspection and copying:

(a) Source code, specifications, schematics, flow charts, artwork, formulas, or other documentation sufficient to show the operation of any aspects or elements of an Accused Instrumentality identified by the patent claimant in its P. R. 3-1(c) chart; and

(b) A copy of each item of prior art identified pursuant to P. R. 3-3(a) which does not appear in the file history of the patent(s) at issue. To the extent any such item is not in English, an English translation of the portion(s) relied upon must be produced.

3-5. Disclosure Requirement in Patent Cases for Declaratory Judgment.

(a) Invalidity Contentions If No Claim of Infringement. In all cases in which a party files a complaint or other pleading seeking a declaratory judgment that a patent is not infringed, is invalid,

or is unenforceable, P. R. 3-1 and 3-2 shall not apply unless and until a claim for patent infringement is made by a party. If the defendant does not assert a claim for patent infringement in its answer to the complaint, no later than 10 days after the defendant serves its answer, or 10 days after the Initial Case Management Conference, whichever is later, the party seeking a declaratory judgment must serve upon each opposing party its Invalidity Contentions that conform to P. R. 3-3 and produce or make available for inspection and copying the documents described in P. R. 3-4. The parties shall meet and confer within 10 days of the service of the Invalidity Contentions for the purpose of determining the date on which the plaintiff will file its Final Invalidity Contentions which shall be no later than 50 days after service by the Court of its Claim Construction Ruling.

(b) Applications of Rules When No Specified Triggering Event. If the filings or actions in a case do not trigger the application of these Patent Rules under the terms set forth herein, the parties shall, as soon as such circumstances become known, meet and confer for the purpose of agreeing on the application of these Patent Rules to the case.

(c) Inapplicability of Rule. This P. R. 3-5 shall not apply to cases in which a request for a declaratory judgment that a patent is not infringed, is invalid, or is unenforceable is filed in response to a complaint for infringement of the same patent.

3-6. Amending Contentions.

(a) Leave not required. Each party's "Infringement Contentions" and "Invalidity Contentions" shall be deemed to be that party's final contentions, except as set forth below.

> **(1)** If a party claiming patent infringement believes in good faith that the Court's Claim Construction Ruling so requires, not later than 30 days after service by the Court of its Claim Construction Ruling, that party may serve "Amended Infringement Contentions" without leave of court that amend its "Infringement Contentions" with respect to the information required by Patent R. 3-1(c) and (d).
>
> **(2)** Not later than 50 days after service by the Court of its Claim Construction Ruling, each party opposing a claim of patent infringement may serve "Amended Invalidity Contentions" without leave of court that amend its "Invalidity Contentions" with respect to the information required by P. R. 3-3 if:
>
> > **(A)** a party claiming patent infringement has served "Infringement Contentions" pursuant to P. R. 3-6(a), or
> >
> > **(B)** the party opposing a claim of patent infringement believes in good faith that the Court's Claim Construction Ruling so requires.

(b) Leave required. Amendment or supplementation any Infringement Contentions or Invalidity Contentions, other than as expressly permitted in P. R. 3-6(a), may be made only by order of the Court, which shall be entered only upon a showing of good cause.

3-7 Opinion of Counsel Defenses.

By the date set forth in the Docket Control Order, each party opposing a claim of patent infringement that will rely on an opinion of counsel as part of a defense shall:

(a) Produce or make available for inspection and copying the opinion(s) and any other documents relating to the opinion(s) as to which that party agrees the attorney-client or work product protection has been waived; and

(b) Serve a privilege log identifying any other documents, except those authored by counsel acting solely as trial counsel, relating to the subject matter of the opinion(s) which the party is withholding on the grounds of attorney-client privilege or work product protection.
A party opposing a claim of patent infringement who does not comply with the requirements of this P. R. 3-7 shall not be permitted to rely on an opinion of counsel as part of a defense absent a stipulation of all parties or by order of the Court, which shall be entered only upon a showing of good cause.

3-8. Disclosure Requirements for Patent Cases Arising Under 21 U.S.C. § 355 (Hatch-Waxman Act).

The following provision applies to all patents subject to a Paragraph IV certification in cases arising under 21 U.S.C. § 355 (commonly referred to as "the Hatch-Waxman Act"). This provision takes precedence over any conflicting provisions in P.R. 3-1 to 3-5 for all cases arising under 21 U.S.C. § 355.

(a) At or before the Initial Case Management Conference, the Defendant(s) shall produce to Plaintiff(s) the entire Abbreviated New Drug Application or New Drug Application that is the basis of the case in question.

(b) Not more than 14 days after the Initial Case Management Conference, the Defendant(s) shall provide to Plaintiff(s) the written basis for their "Invalidity Contentions" for any patents referred to in Defendant(s) Paragraph IV Certification. This written basis shall contain all disclosures required by P.R. 3-3 and shall be accompanied by the production of documents required by P.R. 3-4.

(c) Not more than 14 days after the Initial Case Management Conference, the Defendant(s) shall provide to Plaintiff(s) the written basis for any defense of non-infringement for any patent referred to in Defendant(s) Paragraph IV Certification. This written basis shall include a claim chart identifying each claim at issue in the case and each limitation of each claim at issue. The claim chart shall specifically identify for each claim those claim limitation(s) that are literally absent from the Defendant(s) allegedly infringing Abbreviated New Drug Application or New Drug Application. The written basis for any defense of non-infringement shall also be accompanied by the production of any document or thing that the Defendant(s) intend to rely upon in defense of any infringement allegations by Plaintiff(s).

(d) Not more than 45 days after the disclosure of the written basis for any defense of non-infringement as required by P.R. 3-8(c), Plaintiff(s) shall provide Defendant(s) with a "Disclosure of Asserted Claims and Infringement Contentions," for all patents referred to in Defendant(s) Paragraph IV Certification, which shall contain all disclosures required by P.R. 3-1 and shall be accompanied by the production of documents required by P.R. 3-2.

(e) Each party that has an ANDA application pending with the Food and Drug Administration ("FDA") that is the basis of the pending case shall: (1) notify the FDA of any and all motions for injunctive relief no later than three business days after the date on which such a motion is filed; and

(2) provide a copy of all correspondence between itself and the FDA pertaining to the ANDA application to each party asserting infringement, or set forth the basis of any claim of privilege for such correspondence, no later than seven days after the date it sends or receives any such correspondence.

4. CLAIM CONSTRUCTION PROCEEDINGS

4-1. Exchange of Proposed Terms and Claim Elements for Construction.

(a) Not later than 10 days after service of the AInvalidity Contentions@ pursuant to P. R. 3-3, each party shall simultaneously exchange a list of claim terms, phrases, or clauses which that party contends should be construed by the Court, and identify any claim element which that party contends should be governed by 35 U.S.C. ' 112(6).
(b) The parties shall thereafter meet and confer for the purposes of finalizing this list, narrowing or resolving differences, and facilitating the ultimate preparation of a Joint Claim Construction and Prehearing Statement.

4-2. Exchange of Preliminary Claim Constructions and Extrinsic Evidence.

(a) Not later than 20 days after the exchange of "Proposed Terms and Claim Elements for Construction" pursuant to P. R. 4-1, the parties shall simultaneously exchange a preliminary proposed construction of each claim term, phrase, or clause which the parties collectively have identified for claim construction purposes. Each such "Preliminary Claim Construction" shall also, for each element which any party contends is governed by 35 U.S.C. § 112(6), identify the structure(s), act(s), or material(s) corresponding to that element.

(b) At the same time the parties exchange their respective "Preliminary Claim Constructions," they shall each also provide a preliminary identification of extrinsic evidence, including without limitation, dictionary definitions, citations to learned treatises and prior art, and testimony of percipient and expert witnesses they contend support their respective claim constructions. The parties shall identify each such item of extrinsic evidence by production number or produce a copy of any such item not previously produced. With respect to any such witness, percipient or expert, the parties shall also provide a brief description of the substance of that witness' proposed testimony.

(c) The parties shall thereafter meet and confer for the purposes of narrowing the issues and finalizing preparation of a Joint Claim Construction and Prehearing Statement.

4-3. Joint Claim Construction and Prehearing Statement.

Not later than 60 days after service of the "Invalidity Contentions," the parties shall complete and file a Joint Claim Construction and Prehearing Statement, which shall contain the following information:

(a) The construction of those claim terms, phrases, or clauses on which the parties agree;

(b) Each party's proposed construction of each disputed claim term, phrase, or clause, together with an identification of all references from the specification or prosecution history that support that

construction, and an identification of any extrinsic evidence known to the party on which it intends to rely either to support its proposed construction of the claim or to oppose any other party's proposed construction of the claim, including, but not limited to, as permitted by law, dictionary definitions, citations to learned treatises and prior art, and testimony of percipient and expert witnesses;

(c) The anticipated length of time necessary for the Claim Construction Hearing;

(d) Whether any party proposes to call one or more witnesses, including experts, at the Claim Construction Hearing, the identity of each such witness, and for each expert, a summary of each opinion to be offered in sufficient detail to permit a meaningful deposition of that expert; and

(e) A list of any other issues which might appropriately be taken up at a prehearing conference prior to the Claim Construction Hearing, and proposed dates, if not previously set, for any such prehearing conference.

4-4. Completion of Claim Construction Discovery.
Not later than 30 days after service and filing of the Joint Claim Construction and Prehearing Statement, the parties shall complete all discovery relating to claim construction, including any depositions with respect to claim construction of any witnesses, including experts, identified in the Joint Claim Construction and Prehearing Statement.

4-5. Claim Construction Briefs.

(a) Not later than 45 days after serving and filing the Joint Claim Construction and Prehearing Statement, the party claiming patent infringement shall serve and file an opening brief and any evidence supporting its claim construction. All asserted patents shall be attached as exhibits to the opening claim construction brief in searchable PDF form.

(b) Not later than 14 days after service upon it of an opening brief, each opposing party shall serve and file its responsive brief and supporting evidence.

(c) Not later than 7 days after service upon it of a responsive brief, the party claiming patent infringement shall serve and file any reply brief and any evidence directly rebutting the supporting evidence contained in an opposing party's response.

(d) At least 10 days before the Claim Construction Hearing held pursuant to P.R. 4-6, the parties shall jointly file a claim construction chart.

> **(1)** Said chart shall have a column listing complete language of disputed claims with disputed terms in bold type and separate columns for each party's proposed construction of each disputed term. The chart shall also include a fourth column entitled "Court's Construction" and otherwise left blank. Additionally, the chart shall also direct the Court's attention to the patent and claim number(s) where the disputed term(s) appear(s).
>
> **(2)** The parties may also include constructions for claim terms to which they have agreed. If the parties choose to include agreed constructions, each party's proposed construction columns shall state "[**AGREED**]" and the agreed construction shall be inserted in the "Court's Construction" column.

(3) The purpose of this claim construction chart is to assist the Court and the parties in tracking and resolving disputed terms. Accordingly, aside from the requirements set forth in this rule, the parties are afforded substantial latitude in the chart's format so that they may fashion a chart that most clearly and efficiently outlines the disputed terms and proposed constructions. Appendices to the Court's prior published and unpublished claim construction opinions may provide helpful guidelines for parties fashioning claim construction charts.

(e) Unless otherwise ordered by the Court, the page limitations governing dispositive motions pursuant to Local Rule CV-7(a) shall apply to claim construction briefing.

4-6. Claim Construction Hearing.

Subject to the convenience of the Court's calendar, two weeks following submission of the reply brief specified in P.R. 4-5(c), the Court shall conduct a Claim Construction Hearing, to the extent the parties or the Court believe a hearing is necessary for construction of the claims at issue.

APPENDIX D

TEXAS MOVING IMAGE INDUSTRY INCENTIVE PROGRAM
(As Of September 30, 2014)

2008-2009 Biennium

	Feature Film	Television	Commercial	Video Game	Totals
Applications	7	9	113	26	**155**
Production Jobs	4,955	13,760	5,906	530	**25,151**
Full-Time Equivalent Jobs	562	1,333	135	528	**2,558**
Texas Spending	$39,025,067	$60,544,338	$24,615,114	$17,581,969	**$141,766,488**
Grant Amount	$2,135,767	$3,197,093	$1,289,740	$913,461	**$7,536,061**

2010-2011 Biennium

	Feature Film	Television	Commercial	Video Game	Totals
Applications	32	28	144	38	**242**
Production Jobs	8,173	18,783	7,043	1,472	**35,471**
Full-Time Equivalent Jobs	1,081	3,618	119	1,377	**6,194**
Texas Spending	$112,034,383	$129,358,144	$28,123,912	$112,431,815	**$381,948,253**
Grant Amount	$17,872,088	$27,928,837	$1,787,034	$6,308,234	**$53,896,194**

2012-2013 Biennium

	Feature Film	Television	Commercial	Video Game	Totals
Applications	25	26	153	48	**252**
Production Jobs	5,009	11,782	8,164	1,466	**26,421**
Full-Time Equivalent Jobs	552	1,776	129	1,129	**3,586**
Texas Spending	$70,688,525	$87,232,118	$28,012,116	$55,515,896	**$241,448,656**
Grant Amount	$10,743,305	$18,064,754	$1,721,909	$6,054,955	**$36,584,923**

2014-2015 Biennium

	Feature Film	Television	Commercial	Video Game	Totals
Applications	24	20	115	27	**186**
Production Jobs	14,272	11,649	11,945	901	**38,767**
Full-Time Equivalent Jobs	657	1,478	224	808	**3,167**
Texas Spending	$79,828,256	$87,954,047	$25,196,581	$75,697,286	**$268,676,171**
Grant Amount	$15,692,788	$17,747,447	$1,678,222	$13,355,441	**$48,473,897**

Life of Program

	Feature Film	Television	Commercial	Video Game	Totals
Applications	88	83	525	139	**835**
Production Jobs	32,409	55,974	33,058	4,369	**125,810**
Full-Time Equivalent Jobs	2,851	8,204	607	3,841	**15,504**
Texas Spending	$301,576,231	$365,088,647	$105,947,723	$261,226,966	**$1,033,839,568**
Grant Amount	$46,443,947	$66,938,130	$6,476,905	$26,632,092	**$146,491,074**

NOTES:

1. Reflects the sum of actual spend and jobs for projects reviewed and paid, and the as-applied estimates of spend and jobs from applications for projects not yet submitted. As all projects are ultimately submitted and reviewed, these numbers will necessarily change.

ENDNOTES

[1] "Texas Department of Information Resources." About DIR. Web. 18 Aug. 2014.
[2] Mary Cheryl Dorwart, Director, Enterprise Contracts at Department of Information Resources, in testimony before the Joint Committee on Government Efficiency & Reform and Technology, May 21, 2014.
[3] House Research Organization, Bill Analysis of HB 1516, May 12, 2005
[4] Tex. Admin. Code § 212.1 (2014).
[5] Mary Cheryl Dorwart, Director, Enterprise Contracts at Department of Information Resources, in testimony before the Joint Committee on Government Efficiency & Reform and Technology, May 21, 2014.
[6] Ibid
[7] Texas Department of Information Resources." About DIR. Web. 18 Aug. 2014
[8] Mary Cheryl Dorwart, Director, Enterprise Contracts at Department of Information Resources, in testimony before the Joint Committee on Government Efficiency & Reform and Technology, May 21, 2014.
[9] The Information and Communications Technology Cooperative Contacts Program at the Department of Information Resources. State Auditor's Office. October 2011.
[10] Ileana Barboza, Managing Auditor at State Auditor's Office, in testimony before the Joint Committee on Government Efficiency & Reform and Technology, May 21, 2014.
[11] ibid
[12] ibid
[13] ibid
[14] ibid
[15] Mary Cheryl Dorwart, Director, Enterprise Contracts at Department of Information Resources, in testimony before the Joint Committee on Government Efficiency & Reform and Technology, May 21, 2014.
[16] "Cooperative Contracts Enhancements." Follow up to testimony before the Joint Committee on Government Efficiency & Reform and Technology. 23 May 2014.
[17]Newcombe, Tod. "Utah Leading the Mobile-Friendly Government Movement." Governing 11 Aug. 2014.
[18] Janet Gilmore, Director, Digital Government at Department of Information Resources, in testimony before the Joint Committee on Government Efficiency & Reform and Technology, May 21, 2014.
[19] ibid
[20] ibid
[21] ibid
[22] ibid
[23] Mark Smith, Texas State Library and Archives Commission, in testimony before the Joint Committee on Government Efficiency & Reform and Technology, May 21, 2014.
[24] Bowden Hight, Deputy Executive Commissioner, Health and Human Services Commission, in testimony before the Joint Committee on Government Efficiency & Reform and Technology, May 21, 2014.
[25] ibid
[26] ibid
[27] Matt Hudson, State Representative, Florida House of Representatives, in testimony before the Joint Committee on Government Efficiency & Reform and Technology, May 21, 2014.
[28] Department of Information Resources, written testimony, May 21, 2014.
[29] Disaster Area Reentry, State of Texas Emergency Management Plan, September 2013 http://www.txdps.state.tx.us/dem/documents/planState/reentry.pdf
[30] ibid
[31] ibid
[32] ibid
[33] ibid
[34] ibid
[35] ibid
[36] ibid
[37] ibid
[38] ibid
[39] http://www.ladas.com/Patents/USPatentHistory.html
[40] http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2091210

[41] http://www.pwc.com/us/en/forensic-services/publications/2013-patent-litigation-study.jhtml
[42] ibid
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