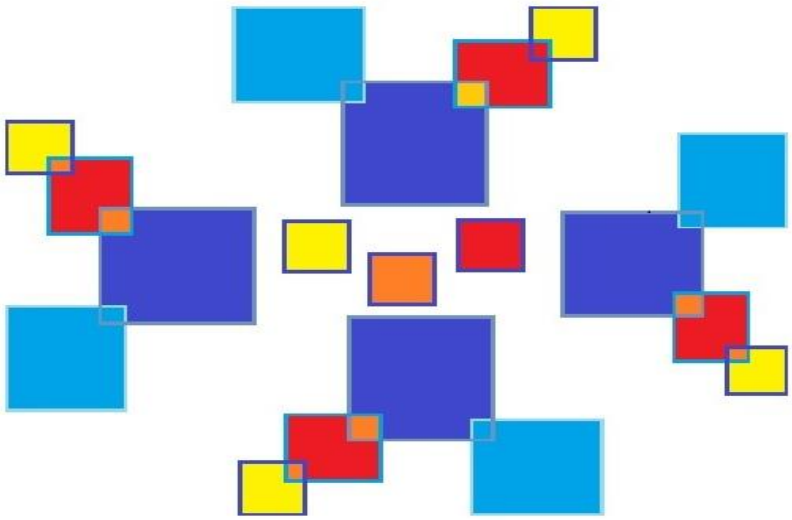
2014

Evaluating Connecticut's Health Information Technology Exchange
Stakeholder Report



Prepared for

Connecticut Department of Public Health

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Executive Summary

In 2010, the Connecticut Department of Public Health (DPH) entered into a Cooperative Agreement with the Office of National Coordinator for Health Information Technology (ONC), to create and implement a State Health Information Exchange (HIE). DPH received an award of $7.3 million to initiate and sustain HIE activities in the state of Connecticut. The Health Information Technology Exchange of Connecticut (HITE-CT), a quasi-public agency, was created by Public Act 10-117, "*An Act Concerning Revisions to Public Health Related Statutes and the Establishment of the Health Information Technology Exchange of Connecticut,*" Sec. 82-90,96 (codified at CGS §19a-750(c)(1)), by the 2010 Connecticut General Assembly and Governor Rell. HITE-CT received $4.3 million over the course of three years to create and implement an HIE infrastructure and facilitate exchange activities in the state. Additionally, DPH contracted with the University of Connecticut Health Center (UCHC) to evaluate the ongoing development and implementation of Connecticut's Health Information Exchange (CT-HIE).

This report summarizes data collected from the various stakeholders involved with the initial advisory committee, the HITE-CT board of directors, and external professionals with expertise in the HIT field. Data collection methods included online surveys, freelisting exercises, one-on-one stakeholder interviews and content analysis from HITE-CT board of director meeting transcripts and meeting minutes. This report reflects qualitative and descriptive quantitative analyses of the time frame from October 2010–January 2014.

This report summarizes the activities and path that HITE-CT took in its creation in January 2011, to create and implement an HIE. This report provides insight into the working of the Board of Directors and the various committees that were created to operationalize their charge. At the writing of this report, the state does not have an operational HIE. At the end of the cooperative grant period on March 14, 2014, the HITE-CT had bought two assets: a Provider Directory (PD) and an Enterprise Master Patient Index (EMPI) and had one full-time employee. The PD has been deployed in a very basic development environment with a potential customer in Department of Social Services (DSS). A use case for the EMPI is yet to be defined, though HITE-CT may be able to make their case to deliver services to Access HealthCT which is currently in need of both a PD and an EMPI. HITE-CT has signed a contract with DSS ending on June 30, 2014 to deliver a standards-based Health Provider Directory.

Key Findings

HITE-CT Board Membership, Committees, and Contribution

- The board was designed to have 20 seats, though actual board membership varied throughout the timeframe of this analysis, due to changes in administration and resignations. At the start of HITE-CT operations in January of 2011, there were 19 active board members and 1 vacant seat for the representative of primary care physician whose practice utilizes EHRs. By October 2013, there were a total of 6 vacant seats on the board representing 5 resignations and 1 which was never filled.
- Five standing committees were adopted with a minimum of two board members required to serve on each and an Executive Committee.

- Legal and Policy: Ms. Boyle (Chair 1) & Mr. Lynch (Chair 2)
- Business and Operations: Mr. Lynch (Chair)& Dr. Agresta
- Technical: Mr. Courtway (Chair) & Dr. Agresta
- Finance: Mr. Carmody (Chair) & Mr. Carr
- Special Populations: Mr. Masselli (Co-chair) & Ms. Kelley (Co-chair)
- Executive Committee established which is comprised of the Chair, Vice Chair/Treasurer, Secretary, and the Chairs of the standing committees

Internal Collaboration

- Overall, HITE-CT respondents represented low integration levels (networking and cooperating) in their reflection of HITE-CT's purpose. However, in regard to its strategies, leadership and decision-making, and interpersonal communication, almost half the respondents rated HITE-CT's integration at the higher levels of partnering and merging.
- Most state agency representatives took a back seat when it came to early decision making on the board. Bureau of Enterprise and Systems Technology (BEST) was the most involved of the state agencies (17 motions) followed by DPH (7 motions) within the first 26 months.
- The most active seats in the first 26 months of the board were the insurer/representative of a health plan making 32 motions and the representative of a large business group made 19 motions. There was high reciprocal support between these two board members.
- Public representatives had the most dissention when it came to HITE-CT decision making. Three of the seven oppositions from the first 2.5 years of HITE-CT operations concerned the consent model.
- In the period of third chairmanship, DSS was the most active state agency with regards to initiating HITE-CT decision making (10 motions) and had the most supportive ties (3).

External Collaboration

- A '3C3 Team' was organized to emphasize the importance of communication, collaboration and cooperation between HITE-CT, DPH, DSS, eHealth Connecticut and Capital Community College, all recipients of ONC funds. Though interagency stakeholder meetings were held with the intention to leverage each other's strengths, little collaboration occurred after the Connecting Connecticut conference in October 2011.
- Axway Partnership
  - In October of 2012 all work related to the Axway contract ceased.
  - In January of 2013, Axway filed a lawsuit against HITE-CT for breach of contract.
  - No work was accomplished for over one year.
  - A new contract was agreed upon and signed in December 2013, at which point all charges against HITE-CT were dismissed. This new contract includes services for a provider directory and EMPI *(Enterprise Master Patient Index)*.
- Rhode Island Quality Institute Partnership
  - After just 5 months of a partnering with HITE-CT, RIQI canceled its contract in November of 2013. This was a significant loss for the agency as this collaboration would have helped HITE-CT stand DIRECT, which was the primary requirement of ONC. This withdrawal of support was indicative of the lack of faith in HITE-CT's viability.

Structural Challenges

- One challenge the board faced was figuring out how to effectively work within the confined nature of the quasi-public agency structure.
- Though some board members found the composition of the board impressive, many raised concern about need for broader representation.
- Declining membership was also a problem that exacerbated the challenge for sufficient constituent representation. The first board resignation came 4 months into HITE-CT operations.
- As membership continued to decline, it became challenging to meet quorum.
- The resignations of Chief Executive Officer, Mr. Gilbertson in August of 2012 and Chief Technical Officer, Mr. DeStefano in November of 2013 placed significant challenges on leadership and operations of HITE-CT.

Financial Challenges

The December 2010 business model that the board adopted required significant sales revenue. Hence, from the onset, HITE-CT was faced with the challenge of building a robust business model to support its operations, as federal funding for the initiative was time limited and state funding to support HIE development and operations was absent.

> *We should at least look at the money we have coming from ONC and say, what do we absolutely need to satisfy to do some of the functions that are not going to be the vendor that we're going to select? … I think that we're going into this (*vendor selection*) without enough information. … it's been worrying me because I know that the amount of money isn't that great and I can't believe that we're just going to hire a vendor and the vendor is going to do everything and there's not going to be any need for anything else. So that's my anxiety level right now being a member of this Board. (*04/18/11 Board of Directors Meeting)

Technical Challenges

The vendor solution developed didn't meet needs of the intended major customer base. Additionally, the vendor was unwilling to negotiate a reduced scope of services and had no capacity to implement Direct messaging protocol. Though hospitals and physicians agreed on the concept of a statewide HIE, the technology needed to be developed precisely for intended client needs and budget. The failed business model is explained below:

> *It didn't work and it didn't work for a number of reasons….And the customers, although they did say they think it's a good idea, I don't think you would go to anybody in the state, a hospital provider, anybody who would say that this is not a good idea. But the return on investment was the issue and the model that came forward from HITE/CT was not a model that they were comfortable with…. Although you can plug into what we had put up in the cloud pretty easily, because it is all based on standards, the market in general wasn't really ready. There aren't that many hospitals in the state who are ready to do this, frankly there are very few. And from the provider office perspective and the large providers, again, there are very few who are really ready to do this... In Connecticut, we have a ways to go in our marketplace before we're really ready to move forward with this.* (08/07/13 Board of Directors Meeting)

Legal Challenges
HITE-CT found itself in contracts that were binding and had difficulty re-negotiating contracts with the vendor as well as DPH. Some of this was due to inexperience and some was due to early reliance on interim contractors making critical technological and operational decisions.

Governance Challenges

- While some members appreciated the leadership role that DPH initially took, some thought from a business perspective that DPH wasn't the right fit to lead HITE-CT.
- One area where leadership was noticeably lacking was in the formation of a Business and Operations subcommittee. Though a solid business plan was critical for the success of HITE-CT, the committee was never assembled. HITE-CT CEO, Mr. Gilbertson emphasizes the importance of assembling this committee at his second board meeting:

  > *This committee will be the nuts and bolts of how this thing is actually going to work beyond the technology. So, you've got the technology and then what do you do with the technology and how do you manage it? And that's the Business and Operations Committee, otherwise we'll have a really nice technology but nobody will know what to do with it.* (12/19/11 Board of Directors Meeting)

  The need to assemble this committee was raised several times, though a group was never successfully brought together:

  > *That's been our problem; we haven't been able to get this Operational Committee to operate.* (04/16/12 Board of Directors Meeting)

- Some members felt that decision making on the board was an insular process and that not only minor, but important decisions were being made behind closed doors. This perspective is expressed during a discussion concerning the hiring of the CTO without a benefits package in place:

  > *I didn't know we'd (decided) that. That's kind of my issue is that a lot of things get done here, and maybe it happens in the Executive Committee, but that's a really important question to me. I'm an advocate for people who don't have health insurance. I would have been paying attention to that and I feel that that decision was taken away from me because we've already done it. I'm concerned that if we go forward now that that will just be the way it's done, and then it will be, you know, 'you're just trying to slow things down'.* (04/16/12 Board of Director Meeting)

- Just 6-months from the end of funding, in October of 2013, the need for a new sustainability model for HITE-CT was addressed by the creation of the Sustainability Work Group. Though, a new plan was imperative for HITE-CT operations to continue, the group only assembled once, and though priorities were identified, no specific recommendations were made to the board from this group.

Interpersonal
Public representatives were concerned with the conflicts of interest on the board, which led to feeling of mistrust, and fear that members would be unduly influenced by personal interests.

Consumer and Public Education
The HITE-CT consent model was a highly contested issue. The initial consent model recommended by the Health Information Technology and Exchange Advisory Committee (HITEAC), as described in the 2010 Strategic and Operational Plan, was based on,

> "*presumptive inclusion of all personal health information (PHI) in the HIE with an individual having the right to prohibit disclosure of his/her PHI by the HIE to others… The HITEAC deliberately refrained from using the terms 'opt-in' and 'opt-out' "in order to avoid confusion and to focus on the functions of the HIE as it relates to patient consent*."

Though the consent model was consistent with current federal and state confidentiality laws and regulations, the decision to not identify it specifically as an opt-out policy, lead to confusion.

Sustainability
Early on in HITE-CT operations, board members expressed fears that HITE-CT would not succeed. Prior to any contract issues or failed initiatives, the perceived sustainability of the CT-HIE over the next ten years was moderate at best.

> "*Timing may mean everything; we may not have staying power.*"
> In the next 20 years, HIE "*will become a utility, just like power.*"

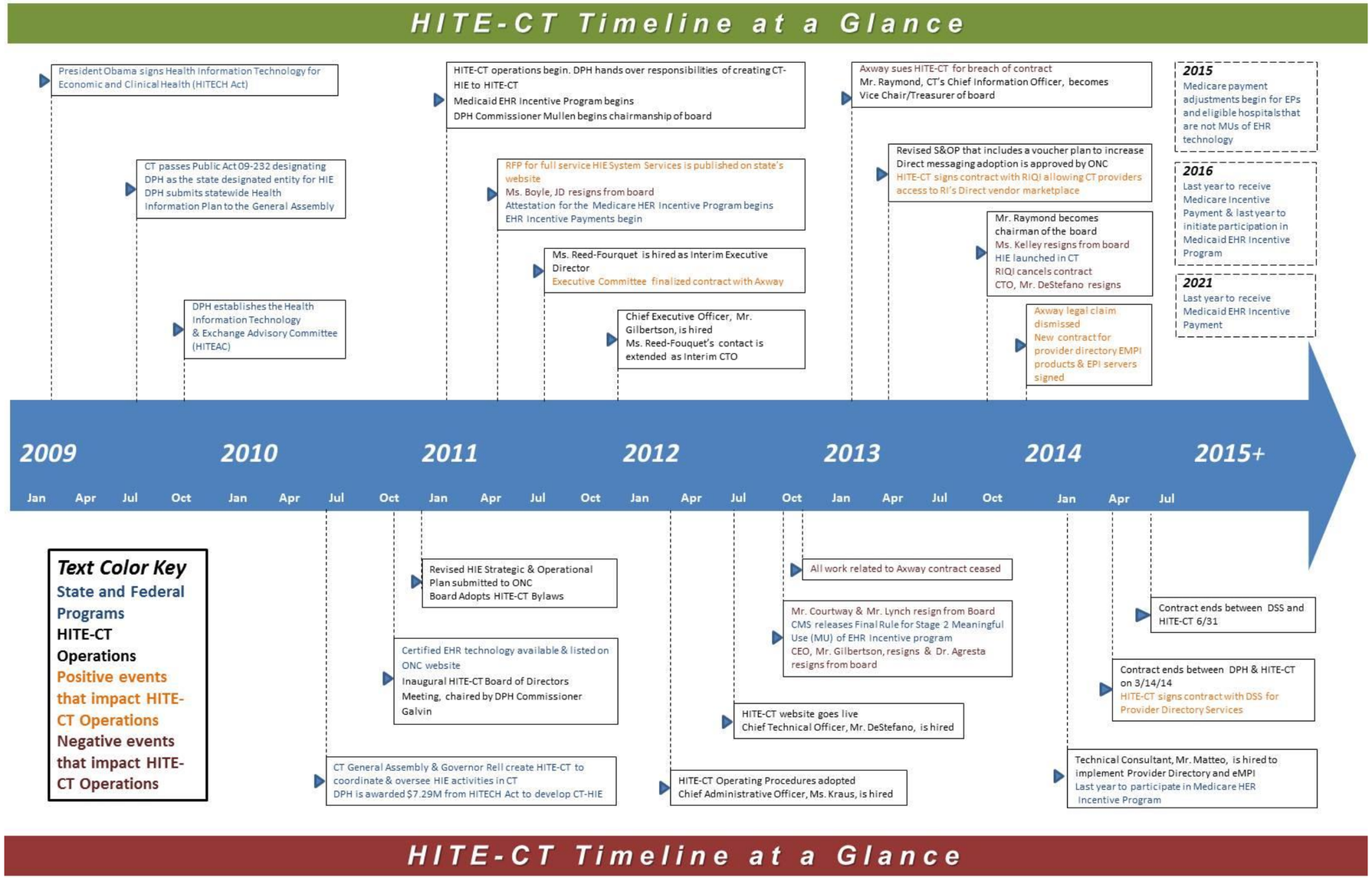
Future of HITE-CT
As summarized by a board member:

> *I mean when we started this effort off, we had a handful of core assets that we were going to be able make available to the marketplace. Long story short…we don't really have any customer base or client base that is calling for those assets to be enabled. So that was going to create the sustainability. So then the question that I would have is, how does the state look at the assets that we have or we will retain after we resolve some of our outstanding issues with some of our vendors, and how does that fit in to that overarching architecture? At this point if we don't have a major grouping to handle that, which was basically for all intents and purposes the hospital system, if the hospital systems don't see us as wanting to come and shop at our doorstep, where are we looking to take these assets and enable them within state architecture? And if not, then I guess we have to look at ourselves and say…"We don't have a sustainability model. We don't have a client base, and we're not getting contributions from the state that fund what we needed of these assets and incorporated into a state architecture." Unfortunately, I think it's time to talk about you unwind where we're at.* (10/01/13 Board of Directors Meeting)

Our final recommendations:

- Board should be comprised of experienced members free from perceived or actual conflicts of interest and those who are willing to attend meetings in person. No seats on the board should be left vacant for more than a quarter.
- HITE-CT should create a viable and realistic business model and develop use cases that are attractive to its customer base.
- Need to engage the public through education and outreach.

HITE-CT Timeline at a Glance



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Introduction

Background

Collaboration and Health Information Technology

It is widely acknowledged by the federal government and health care community that health information technology (HIT) has the potential to improve the quality of health care delivered in the United States with regards to safety, effectiveness, patient-centeredness, timeliness, efficiency and equity. [2] The promise of HIT for the advancement of quality health care resulted in substantial funding for State Cooperative Agreements to Promote Health Information and Technology, in order to "continuously improve and expand health information exchange (HIE) services over time to reach all health care providers to improve the quality and efficiency of health care."[3] The Office of the National Coordinator for Health Information Technology funded 56 HIEs to cover all US and its territories.

We believe these cooperative agreements were guided by the premise that independent entities working in isolation often cannot achieve the same impact that can be attained through collaborative efforts between multiple entities.[4] Therefore, inter-organizational collaborations are increasingly dominating as solutions to widespread community concerns that affect a variety of individuals, such as poor quality health care.

Definition

Collaboration in and of itself can be a difficult term to define explicitly, and Gajda[4] offers thirteen synonyms for this term, including 'strategic alliance', 'partnerships', and 'coalitions'. Despite the uncertainty regarding terminology, collaboration at the very least describes a relationship between at least two entities that have a shared goal. Even more specifically, Chrislip and Larson (1994)[5] define collaboration as "a mutually beneficial relationship between two or more parties who work toward common goals by sharing responsibility, authority, and accountability for achieving results". Further, the authors suggest that collaboration can be distinguished from other terms such as networking by the varying levels of authority and shared responsibility present within a collaborative partnership.

Collaborative efforts are also seen as prerequisite for the sustainability of programs and projects, especially among programs that began with only short-term funding sources.

Reasons for Collaboration

Relationships between organizations and individuals is considered critical for program success, and is frequently both an explicit and implicit requirement for the receipt of grant funding.[6] Importantly, collaborative efforts are also seen as prerequisite for the sustainability of programs and projects, especially among programs that began with only short-term funding sources. Due to the high costs associated with initial acquisition and implementation of electronic health records (EHRs), one-time funding is frequently used to incentivize HIT adoption. This leaves the maintenance and sustainability of these HIT implementations for the annual organizational

IT budgets. Given the high cost of maintenance, constant upgrades in certifications, organizations are constantly looking for additional resources for sustainability. Interagency collaborations represent a possible option for sustainability.

Evaluating Interagency Collaboration

Despite the challenges associated with widespread adoption of HIT, it has the potential to transform health care delivery if implemented with adequate planning and foresight. Therefore, evaluation of HIT efforts is imperative in determining future strategies for successful widespread adoption. An important component of adoption is the collaboration that occurs between agencies during the planning, implementation, and post-implementation stages of delivery.

In reviewing various models of collaboration, there is consensus that there is a continuum of levels of integration, characterized by the intensity of the alliance's process, structure and purpose.[4,7-9] Gajda's framework[4] identifies five categories of graded integration: networking, cooperating, partnering, merging, and unifying. Each level is characterized by differing purposes, organizational strategies and tasks, leadership and decision-making and type and frequency of communication. Examples of low-level integration collaboration would include support groups and networking organizations, while partnerships and coalitions would be examples of higher integration as they work together to achieve shared goals. Gajda argues that groups must move to higher levels of integration to be more effective.

> A collaboration is likely to go through five categories of graded integration:
>
> networking,
> cooperating,
> partnering,
> merging, and
> unifying.

Gajda's framework[4] also refers to staged development of collaboration, drawn from the literature on organizational change. She uses Bailey & Kooney's[7] four stages of developing collaboration starting with 1) assemble and form, 2) storm and order, 3) norm and perform, 4) transform and adjourn. The second developmental phase is the one noted to be most interpersonally intense. This is the phase in which stakeholders seek to establish their individual roles within the initiative, and norms and practices of the collaborative are determined. The performance stage is only reached once the mission, strategic plan, systems for communication, leadership and decision making structures are in place. Once these mechanisms are in place, the group is able to focus on performing, rather than implementation planning. In transformation, the last stage of alliance development, the group assesses evaluation data to determine what, if any, modifications are needed to enhance the program and process.

> Four stages of collaboration development starts with
>
> 1) assemble and form,
> 2) storm and order,
> 3) norm and perform, and
> 4) transform and adjourn.

Though these types of collaboration and linkages between the involved agencies are critical for understanding levels of integration, it is equally important to consider the inter-personal connections between the involved parties. Trust and clear communication are critical foundations for successful initiatives. Interpersonal conflict is expected and inevitable in

situations where multiple voices need negotiation, particularly when levels of integration and personal involvement increase.

> Trust and clear communication are critical foundations for successful initiatives.

Creating HITE-CT

In 2009, the Connecticut Department of Public Health (DPH), the state designated entity for Health Information Exchange (HIE), published the Connecticut State Health Information Technology Plan, which set forth a strategic plan for healthcare information exchange and technology. With the goal of creating a statewide HIE, and by legislative mandate, DPH established the Health Information Technology and Exchange Advisory Committee (HITEAC), comprised of a "broad array of health care stakeholders, to provide advice and guidance for the initial planning and coordinating activities of the statewide HIE."[1] The following year, in 2010, the DPH entered into a Cooperative Agreement with the Office of National Coordinator for Health Information Technology (ONC), to establish a State HIE. DPH received an award of $7.3 million to initiate and sustain HIE activities in the state of Connecticut [10,11]. The Health Information Technology Exchange of Connecticut (HITE-CT), a quasi-public agency, was created by the Public Act 10-117, "An Act Concerning Revisions to Public Health Related Statutes and the Establishment of the Health Information Technology Exchange of Connecticut," Sec. 82-90,96 (codified at CGS §19a-750(c)(1)), by the 2010 Connecticut General Assembly and Governor Rell. HITE-CT received $4.3 million over the course of three years to build an HIE infrastructure and facilitate exchange activities in the state. Additionally, DPH contracted with the University of Connecticut Health Center (UCHC) to evaluate the ongoing development and implementation of Connecticut's Health Information Exchange (CT-HIE).

HITE-CT's Mission and Vision

"to collaboratively establish policies, services, and innovations that make possible the adoption of health information technology for the purpose of improving health and health care safety, access, and efficiency for all Connecticut residents. HITE-CT's vision is to establish and manage a statewide health information exchange to attain substantial and measurable improvements in several key areas, including but not limited to:

1) *Patient access to health care and their medical records*
2) *Continuity and coordination of care*
3) *Quality of care, medical outcomes and patient experience*
4) *Effectiveness and efficiency of health care delivery*
5) *Public health population-based systems outcomes*[12]

HITE-CT Governance

HITE-CT Board Chairmanship

From October 2010 to October 2013, the Board of Directors was chaired by the Commissioner of Public Health or his or her designee. Dr. Robert J. Galvin served as Chairman of the board from October 2010 until January 2011 (Chair 1 period), when there was a change in state administration, and Dr. Jewel Mullen, MD, MPH, MPA took over as Commissioner. Dr. Mullen chaired the board from February 2011 until January 2013 (Chair 2 period) when Elizabeth Keyes, Executive Assistant to Commissioner Mullen was appointed as Mullen's designee. In

February 2013, Mark Raymond, the state's Chief Information Officer, was nominated for the position of Vice Chairperson/Treasurer of the board and later in October of 2013, was appointed by the Governor as chairman of the board which was enabled by Public Act 13-208. In this report we refer to the time period from February 2013-January 2014, when Mr. Raymond served as Vice Chair and Chairman, as Chair 3 period.

HITE-CT Committees

Following ONC grant reporting requirements, the Board of Directors voted to establish 6 standing subcommittees, each of which required membership of 2 board members. These subcommittees included Finance, Technical Infrastructure, Business and Technical Operations (later renamed to Business & Operations so as not to confuse with Technical subcommittee), Legal and Policy, and Special Populations. Additionally, an Executive/Governance subcommittee was established that would be chaired by the chairperson of the board and would have membership drawn from the chairs of the standing subcommittees.

Standing Committees

The role of the **Executive/Governance Committee** is to oversee "the implementation and maintenance of the governance structure of the HITE-CT. This Committee will create trust and consensus for developing a statewide health information organization and to provide oversight and accountability of the exchange to protect the public interest. A primary purpose is to develop and maintain a multi-stakeholder process to ensure the exchange of health information among providers is in compliance with applicable policies and laws."[13]

The **Finance Subcommittee** is responsible for "making recommendations regarding the identification and management of financial resources necessary to fund the health information exchange. The finance domain includes public and private financing for building HIE capacity and sustainability. This also includes, but is not limited to, pricing strategies, market research, public and private financing strategies, financial reporting, business planning, audits and controls."[13]

The **Technical Infrastructure Subcommittee** is responsible for "making recommendations to the Board on statewide architecture, hardware, software, application, network configuration and other technical aspects that physically enable for HIE service in a secure and appropriate manner. All recommendations need to address the short-term (> 3 years) and long-term (4+ years) goals to support the planning and implementing phases of the overall project. Short-term goals will identify the local and State-level requirements that can be achievable and long-term goals that will address interoperability with the NHIN."[13]

The role of the **Legal and Policy Subcommittee** is to "provide strategic input to HITE-CT regarding legal and policy issues for statewide HIE including policy frameworks, privacy and security requirements, data sharing agreements, laws, regulations, and multi-state harmonization. Its primary purpose is to create a common set of rules to enable inter-organizational and eventually interstate health information exchange, while protecting consumer interests."[13]

The **Special Populations Subcommittee** is responsible for "making recommendations regarding how to involve community based service providers in the development of the statewide HIE. The Committee will also make recommendations specific to the following:

- Medically underserved populations
- Newborns, children and youth, including those in foster care
- The elderly
- Persons with disabilities
- Limited English Proficiency persons
- Persons with mental and substance abuse disorders
- Persons in long term care"[13]

Though a **Business and Operations Subcommittee** was regarded as necessary to drive the operations of HITE-CT, this committee never officially assembled and defined roles and responsibilities of the group were not spelled out. Agenda items for proposed meetings included the need to develop value cases, communications for HITE-CT, evaluation metrics, business processes and a business plan.

HITE-CT Ad Hoc Advisory Committees
In addition to these 6 standing subcommittees, 4 ad hoc advisory committees were assembled for specific and time sensitive needs. These advisory committees included a Personnel Search Committee, Consent, Patient Privacy and Security Advisory, and Sustainability.

Though a **Business and Operations Subcommittee** was regarded as necessary to drive the operations of HITE-CT, this committee never officially assembled and defined roles and responsibilities of the group were not spelled out.

The **Personnel Search Committee** was formed at the inaugural meeting and tasked with developing job descriptions for HITE-CT staffing, including the Chief Executive Officer (CEO), interim CEO position, Technical Director, Executive Assistant/ Program Manager, Interim/Consultant Position. They were also tasked with setting a plan for the recruitment and selection process of the CEO and advised on compensation, and a medical and benefits package. The chairperson of the board was an ex-officio member, and was responsible for appointing three members to the committee.[14]

In March of 2011, a **Consent Committee** was formed consisting of Board members who represent consumers, clinicians, financial, legal and technical perspective to review the Consent Policy Model in the ONC approved HITE-CT Strategic and Operational Plan and the current law governing exchange of protected health information, and to make a new recommendation to the board regarding the agency consent model. *(03/21/11 HITE-CT Board Meeting Minutes)*

The **Patient Privacy and Security Advisory Committee** was legislatively established in June 2011 and tasked to 'monitor developments in federal law concerning patient privacy and security relating to health information technology,' and to 'report to the Board on national and regional trends and federal policies and guidance set forth in this area'. Appointments to this committee were made by the Lieutenant Governor.[13]

In October of 2013 a **Sustainability Committee** was formed to discuss new options and make recommendations for a new sustainability/organizational model that would make the most

sense going forward, as the original business model was not able to sustain HITE-CT operations. *(10/01/13 HITE-CT Board Meeting Transcript)*

Detailed HITE-CT Timeline

In this section we present a detailed timeline of activities that unfolded from February 2009, preceding the creation of HITE-CT (Refer to Table 1) and those that were undertaken by the HITE-CT (Refer to Table 2).

Table 1. Pre HITE-CT Activities Related to HIE Initiatives in CT

Year Month	HITE-CT Milestones-/Critical Events State and Federal Programs related to HIE Positive Events that Impact HITE-CT Operations Negative Events that Impact HITE-CT Operations
2009	
February	• President Obama signs into law the American Recovery & Reinvestment Act (ARRA), in which is the Health Information Technology for Economic and Clinical Health (HITECH Act).
June	• Governor Rell signs bill making DPH the state's lead health information agency responsible for the State of CT Health Information Technology and Exchange Development Project. • DPH publishes the CT State Health Information Technology Plan.
July	• CT passes the Public Act 09-232 designating DPH as the leader for the HIE initiative in the state. • DPH submits statewide Health Information Plan to the General Assembly.
October	• DPH establishes the Health Information Technology & Exchange Advisory Committee (HITEAC).
2010	
March	• DPH is awarded $7.29M from HITECH Act to plan and create a statewide and interstate HIE.
April	• eHealthCT is designated as the Regional Extension Center (REC) for CT. They receive $5.75M grant to offer technical assistance, guidance and information on best practices to support and accelerate health care providers' efforts to become meaningful users of EHRs.[1]
June	• The 2010 CT General Assembly and Governor Rell create the Health Information Technology Exchange of CT (HITE-CT) as a quasi-public agency managed by an appointed Board of Directors to coordinate and oversee Health Information Exchange (HIE) activities in the state.
Fall	• Certified EHR technology available and listed on ONC website.

Table 2. Post HITE-CT Activities Related to HIE Initiatives in CT

Year Month	HITE-CT Milestones/Critical Events State and Federal Programs related to HIE Positive Events that Impact HITE-CT Operations Negative Events that Impact HITE-CT Operations
2010	

October	• Inaugural HITE-CT Board of Directors Meeting. Chaired by DPH Commissioner Galvin.
	• Dr. Agresta voted in as Vice Chair of the Board.
	• Mr. Carmody voted in as Secretary of the Board.
	• Four standing committees adopted with a minimum of two board members required to serve on each.
	  ○ Legal and Policy: Ms. Boyle & Mr. Lynch
	  ○ Business and Operations: Dr. Agresta & Mr. Lynch
	  ○ Technical: Dr. Agresta & Mr. Carmody
	  ○ Finance: Mr. Carmody & Mr. Carr
	• Executive Committee established which is comprised of the Chair (Mr. Galvin), Vice Chair/Treasurer (Dr. Agresta), Secretary (Mr. Carmody) and the Chairs of the four standing committees (Mr. Courtway, Mr. Masselli, Mr. Carr, Mr. Carmody).

November	• Board Adopted HITE-CT Bylaws.
December	• Revised HIE Strategic & Operational Plan submitted to ONC. • Legal & Policy, Executive, Technical, Finance, & Special Populations committee membership lists approved by Commissioner Galvin. Awaiting final membership list for Business Committee.
2011	
January	• Registration for the EHR Incentive Program Begins. • Medicaid Electronic Health Records (EHR) Incentive Program (DSS) begins. • DPH hands over responsibilities of creating a statewide HIE to HITE-CT. • HITE-CT begins operation.
February	• New DPH Commissioner, Dr. Mullen, chairs her first meeting. • Board approves Technical Infrastructure Committee's recommendation to develop an RFP for a full service health information exchange (HIE) service provider.
April	• Attestation for the Medicare EHR Incentive Program begins. • RFP for full service HIE System Services approved by DPH, Governor's Office and ONC and is published on state's website. • Board approves Consent Committee's recommendation for the consent model. • Board Approves the law firms of Shipman & Goodwin and Updike, Kelly & Spellacy to serve as counsel to HITE-CT. • Ms. Boyle, JD resigns: leaving vacant seat for attorney with background and experience in the field of privacy, health data security or patient rights. • Business & Technical Committee is renamed to Business & Operations to prevent confusion with Technical Infrastructure Committee.

Year Month	HITE-CT Milestones/Critical Events State and Federal Programs related to HIE Positive Events that Impact HITE-CT Operations Negative Events that Impact HITE-CT Operations
May	• EHR Incentive Payments begin. • CT received approval from the Board, Commissioner Mullen, Lt. Governor Wyman's Office, as well as ONC for its Strategic and Operational Plan, Financial/ Sustainability Plan and the RFP that was developed. • HITE-CT CEO position posted. • Mr. Casey volunteers as HITE-CT Ethics liaison.
June	• HITE-CT legislation adopted (subst. house bill no. 6618) - requires Board of Directors to establish an advisory committee on patient privacy and security. Members to be appointed by board chairs. • Personnel Search Committee empowered to solicit, identify, screen qualified candidates, and make recommendations to the Executive Committee; to authorize the Executive Committee to make a final decision with regard to hiring an interim Executive Director; and, that the Vice-Chair/Treasurer is authorized to sign any and all letters and/or agreements necessary to hire an interim Executive Director. • Draft HITE-CT budget adopted.
July	• Ms. Reed-Fourquet hired as the Interim Executive Director and authorized to hire/engage in a contract to hire administrative support. • Mr. Lynch fills in as acting chair for the Legal & Policy committee.
August	• Mr. Casey appointed as the interim Privacy and Security Officer. • Directors and Officers Insurance procured.
September	• Executive Committee finalized contract with Axway, Inc.
October	• The Regional Extension Center in collaboration with DPH, DSS, HITE-CT, Capital Community College & UCHC host "Connecting Connecticut", an all-day HIE and HIT educational conference. • Special Populations Committee finalized Consumer Principles.
November	• HITE-CT CEO, Mr. Gilbertson, is hired. • Executive Committee authorized Mr. Gilbertson to extend Ms. Reed-Fourquet's contact through 12/20/11. • Policy on Litigation Costs of Directors, Officers and Employees & Adoption of Non-discrimination Resolution passed. • Privacy and Security Policy, Identity Management Policy, Authentication Policy, Access Control Policy, Breach Notification Policy, Purpose of Use Policy, Affinity Domain Interoperability Policy, Information Security Policy Consumer Authorization and Consent Policy, and Consumer Authorization and Consent Policy adopted. • November 30: Last day for eligible hospitals and CAHs to register and attest to receive an Incentive Payment for FFY 2011.

Year Month	HITE-CT Milestones/Critical Events State and Federal Programs related to HIE Positive Events that Impact HITE-CT Operations Negative Events that Impact HITE-CT Operations
December	• DPH awarded HITE-CT $4,341,252 to be paid over 3 years. $1.6 million was transferred to HITE-CT. • Executive Committee authorized CEO, Mr. Gilbertson, to extend Ms. Reed-Fouquet's contact as Interim Chief Technical Officer (CTO) until a permanent CTO is hired.
2012	
January	• Operating Procedures published in the CT Law Journal for 30 day comment period. • Ms. Kraus introduced as the new Chief Administrative Officer. • Board members asked to prepare a summary of their stakeholder groups needs and issues for the HIE for the February meeting.
February	• HITE-CT Operating Procedures adopted. • February 29: Last day for EPs to register and attest to receive an Incentive payment for CY 2011.
March	• Legislation SB 368 An Act Concerning The HITE-CT: A bill sponsored by the Public Health Committee meant to develop privacy practices and procedures by which to notify patients concerning the collection of patient health information and the use of such information in the state-wide Health Information Exchange. o Dr. Agresta and Mr. Lynch submitted testimony stating HITE-CT was in opposition to the bill as written. o Ms. Veltri & Ms. Andrews were both in support of the bill. • 7 Financial Policies adopted by the board, as recommended by the finance committee.
May	• Mr. DeStefano is hired as the HITE-CT Chief Technology Officer. Ms. Reed-Fourquet is retained for technical consulting. • 6 Financial policies adopted by the board, as recommended by the finance committee. • Executive Session discussions begin concerning Axway contract & negotiations. • CEO is authorized, with the Executive committee and attorney, to re-negotiate the contract with Axway to provide the core services of secure messaging transport formation, public health reporting, and provider directory.
June	• Ms. Hooper, State Coordinator for HITE/DPH, retires. • HITE-CT website goes live and can be accessed at www.ct.gov/hitect • HITE-CT posted job openings for an Administrative Project Officer, Customer Support Manager, and Program Development Officer on Indeed.com and the HITE-CT website. • CEO is authorized, with the Executive committee and attorney, to re-negotiate the contract with Axway to include greater specificity around milestones, phased implementation, and payment terms.

Year Month	HITE-CT Milestones/Critical Events State and Federal Programs related to HIE Positive Events that Impact HITE-CT Operations Negative Events that Impact HITE-CT Operations
	• HITE-CT Operating Budget FY13 adopted.
July	• Participation Agreement approved by board. • D&O Insurance renewed with a $1 million limit. • CTO, Mr. DeStefano, gives a presentation about Direct including models used by other states. • HITE-CT CEO, Mr. Gilbertson announces his resignation. He will continue the Axway contract negotiation and submit a sustainability plan to ONC before he leaves.
August	• Connecticut's Medical Assistance Provider Incentive Repository (MAPIR) system begins accepting Meaningful Use (MU) of the certified Electronic Health Records (EHR) attestation from Eligible Professionals (EPs) including physicians, dentists, nurse practitioners and certified nurse midwives as part of the Medicaid EHR Incentive program. (August 1st) • HITE-CT Benefits plan approved by the board. • HITE-CT sustainability plan and update submitted to ONC. • HITE-CT signs up with ZOHO, an online Customer Relationship Management application to assist with marketing and customer support efforts for Direct. • HHS Press Release on Meaningful Stage 2 Rules - HHS announces next steps to promote the use of EHRs and health information exchange. (August 23rd) • Dr. Agresta resigns from Board, leaving Treasurer/Vice Chair vacancy. • HITE-CT CEO, David Gilbertson, resigns.
September	• Centers for Medicare and Medicaid Services (CMS) released the Final Rule specifying the criteria for Stage 2 Meaningful Use (MU) of the EHR Incentive program • Minakshi Tikoo takes lead as HIT-CT Coordinator. • Peter Courtway resigns from the board. • John Lynch's appointment on the HITE-CT board expires and he does not seek reappointment. • Commissioner Mullen temporarily fills the role of Vice Chair/Treasurer until new officers are appointed.
October	• All work related to Axway contract ceased.
2013	
January	• Lawsuit between Axway and HITE-CT filed in the United States District Court for the District of Connecticut captioned Axway, Inc. v. Health Information Technology Exchange of Connecticut, Civil Action No. 3:13-CV-00008 (CSH). HITE-CT is sued for Breach of Contract. • Ms. Keyes, Executive Assistant to Commissioner Mullen of DPH, is appointed as designee for the Board Chairperson. • CTO Mr. DeStefano, in consultation with legal counsel, is authorized by board to publish an RFQ for Direct services.

Year Month	HITE-CT Milestones/Critical Events State and Federal Programs related to HIE Positive Events that Impact HITE-CT Operations Negative Events that Impact HITE-CT Operations
February	• Mr. Raymond is nominated and receives the position of Vice Chairperson/Treasurer of the HITE-CT Board. • Legal service agreements with Shipman & Goodwin and Updike, Kelly & Spellacy are renewed for 1 year on an 'as used' basis with hourly charges.
April	• Ms. Kraus appointed as the Ethics Liaison for HITE-CT. • Revised Strategic and Operational Plan (S&OP) was submitted to and approved by ONC, reflecting HIE activities across the state and includes a Voucher Plan, which focuses to increase the adoption of Direct messaging. • Board authorizes Executive Committee to put the voucher plan into action with a budget limit of $270,000, contingent on the approval of the revised memorandum of agreement with DPH.
May	• Legal council approves HIE-CT entering into the RIQI agreement. RIQI will modify their website to accommodate Connecticut and will also change the Rhode Island Trust Community name to the Southern New England Trust Community.
June	• HITE-CT signed a 1 year Administrative Services Agreement with RIQI allowing CT providers to have access to RI's Direct vendor marketplace. • Rhode Island Quality Institute (RIQI) launches the Southern New England Trust Community. • HITE-CT's Ethics Policy approved.
July	• HITE-CT executed on the agreement to partner with RIQI to enroll qualified CT entities in the Southern New England Trust Community (SNETC). CT providers will have access to RI's Direct vendor marketplace. RIQI announced the partnership and launch of SNETC in a press release that has been picked up by several media outlets.
September	• DPH has requested a refund of Year 1 unspent funds in the amount of $179,435.98, to be returned by 09/09/13. • HITE-CT F208 Fixed Asset Controls Policy modified from $50 - $1,000 to $50 - $4,999.99. • HITE-CT obtained a D&O insurance policy through Lloyd's with an aggregate limit of liability for $2 million.
October	• Mark Raymond, the state's Chief Information Officer, becomes Chairperson of the Board of Directors. • Health Insurance Exchange launched in CT. • DPH rescinds their request for the return of Year 1 unspent funds in the amount of $179,435.98 and stipulates that the unspent funds are not to be expended without DPH approval. • CTO, Mr. DeStefano, notified the Board that he would be resigning from HITE-CT sometime in early to mid-November. • Sustainability Working Group established. Members include: Mr. Raymond, Mr. Carmody, Dr. Carr, and Commissioner Bremby.

Year Month	HITE-CT Milestones/Critical Events State and Federal Programs related to HIE Positive Events that Impact HITE-CT Operations Negative Events that Impact HITE-CT Operations
November	• HITE-CT CTO, John DeStefano, resigns. • RIQI cancels its contract for the procurement of services around certificates for the Southern New England Trust Community. • Board approves contract amendment between DPH and HITE-CT which allows the following: o HITE-CT to amend the contract between HITE-CT and Axway o Unspent grant funds from Years 1 and 2 can be used in Year 3 o It reduces the overall grant amount to account for unmatched funds we were not able to provide o It allows us to move some of the salary dollars for the CTO salary to a temporary technical resource to assist with product installations (i.e., the Provider Directory and Enterprise Master Patient Index (EMPI) o It reduces the timeframe to return unspent funds from 90 days to 60 days after the end of the grant to allow for the full closeout timeline.
December	• Axway claim dismissed with $970,000 settlement. New Axway contract for provider directory EMPI products and EPI servers signed.
2014	
	Last year to initiate participation in the Medicare EHR Incentive Program.
January	• DPH executed an amendment to their Memorandum of Agreement with HITE-CT, which includes an approved Year 3 budget. • Lou Matteo hired as the new Technical Project lead consultant for HITE-CT. He will work with Axway to implement the Provider Directory and eMPI.
March	• Contract between DPH & HITE-CT ends on 3/14/14. • HITE-CT signs contract with DSS for Provider Directory services starting 3/15/2014.
June	• Contract between DSS and HITE-CT ends on 6/30/14/
2015	
	Medicare payment adjustments begin for EPs and eligible hospitals that are not meaningful users of EHR technology.
2016	
	Last year to receive a Medicare EHR Incentive Payment. Last year to initiate participation in Medicaid EHR Incentive Program.
2021	
	Last year to receive Medicaid EHR Incentive Payment.

Methodology

The Connecticut Department of Public Health contracted with the University of Connecticut Health Center (UCHC) to evaluate the value proposition of the Health Information Technology and Exchange (HITE) Cooperative Agreement, funded by the Office of the National Coordinator (ONC). The contract period for this evaluation is 7/1/2010-3/14/2014. The evaluation design uses mixed methods, both survey research and in-depth interviews. This report presents the findings from an Advisory Board (pre-HITE-CT) survey, in-depth interviews with stakeholders, and both qualitative and quantitative analyses from verbatim transcripts and certified meeting minutes available in the public domain for the HITE-CT board meetings.

Survey with the DPH Advisory Committee Members

The Department of Public Health (DPH) Health Information Technology and Exchange Advisory Committee (HITEAC) was tasked with guiding and advising DPH as it embarked on the development of the Health Information Exchange Strategic Plan. An advisory committee survey was developed and posted online using SurveyGizmo.com in September 2010. The link to the survey was sent out by DPH to members of the advisory committee on October 6th, 2010. Survey questions explored the work accomplished by the advisory committee and its subcommittee and also recommendations and potential barriers for the newly formed HITE-CT Board of Directors. As part of our survey, we asked advisory committee members to list five words that came to mind when they thought about the work they had done as a committee. This technique is called freelisting, and has primarily been used by anthropologists to identify domains that are based on a core set of items that are mentioned by many respondents, plus a large number of items that are mentioned by few or just one person. It is assumed that, the core set of items reflect the existence of a shared cultural norm, while the additional items represent the idiosyncratic views of individuals.[15]

Stakeholder Interviews

Between May 2011 and January 2012 (during the first full year of HITE-CT operations) we conducted 13 one-on-one stakeholder interviews, with HITE-CT Board of Directors and external professionals in the HIT field. To strengthen the reliability and validity of the data, interview schedules, which included both semi-structured open ended questions and quantitative scales were developed and approved by the UCHC Institutional Review Board. Verbal consent was obtained from each participant and field notes were taken to document participant responses.

Interview questions included roles and responsibilities both professionally and on the HITE-CT Board, attitude toward the initiative, challenges and barriers associated with the initiative, agency collaboration, establishment of the authority, overall satisfaction, and recommendations. The interview included a freelisting section, which asked respondents to list 3 or more words that came to mind when they thought about the CT HIE. Perceived agency collaboration and sustainability were explored both qualitatively and quantitatively. Following a discussion on overall experience as a member of a multi-agency collaboration, stakeholders were asked to identify levels of agency integration based on Gajda's[4] Strategic Alliance Formative Assessment Rubric. These items measured HITE-CT's level of integration on four central characteristics to strategic alliance development: agency purpose, strategies, leadership and decision making, and interpersonal communication within the collaboration. While Gajda's framework identifies five

levels of integration ranging from networking to unifying, we limited our metric the first four levels, as unification was not an intended purpose of HITE-CT. The discussion of sustainability of the HIE included a 5 point likelihood scale for the next 10 and 20 years, which was followed with a discussion of important elements necessary to achieve sustainability and obstacles to a sustainable HIE in CT. Overall satisfaction with different elements of the CT HIE was measured with a 5 point satisfaction scale. Please Refer to Appendix C: Instruments used in this study.

HITE-CT Board of Directors Meeting Analysis

Board Member Participation

We conducted various analyses from verbatim transcripts and certified minutes of the monthly HITE-CT Board of Directors meetings from the inaugural meeting in October 2010 to January 2014. In addition to the qualitative analysis from the transcripts, we quantified board member contribution to the meetings by tallying the number of comments spoken (regardless of their length or relevance), number of motions made and supported, attendance (in person and by phone), committee membership, duration on the board, percent of stakeholder seats represented at each meeting, and percentage of phone attendance.

Board Member Support Analysis

As part of this study, we were interested in the relationship between board members and between constituencies. **Node selection:** In this evaluation, nodes represent the specific constituent group that each board member was legislatively appointed to represent.
Rating scale: We used an objective measurement of relationship strength based upon motions made and supported amongst board members during the monthly board meetings. Each published and board approved minutes from the HITE-CT Board of Directors meetings from October 2010 – January 2014 were reviewed. Documentation was made for each motion, its second and any objection made. Motions and seconds for adjourning were not included in this analysis. Below is an excerpt from the March 21st, 2011 meeting minutes from which two ties of relationship strength would be drawn.

> ***MOTION:*** *A motion was made and seconded by D. Carmody and J. Mullen, respectively, to authorize the Chief Executive Officer with the Executive Committee and attorney to re-negotiate the contract with Axway to provide the core services of secure messaging transport formation, public health reporting, and provider directory and to report back to the Board of Directors, as necessary. B. Kelley opposed.* ***Motion passed.***

In this example above, Commissioner Mullen would get one count of support for Mr. Carmody's motion & Ms. Kelley would get one count for opposing Mr. Carmody's motion.

After the counts were tallied in table format, they were entered into an Excel spreadsheet for analysis. Relationship strength was operationalized as follows:

Measurement of Board of Directors Support
High support: 3+ motions supported in one direction
High reciprocal support: 3+ motions supported in both directions
Support: 2 motions supported in one direction
Reciprocal support: 2 motions supported in both directions
Opposing: Opposed at least 1 motion

When reciprocal support didn't fall neatly into either category (ex. 2 supported motions in one direction and 5 in the reverse direction- the average of the two counts was used to determine the level of support. If the average was 3.0 or greater, as in the example above, the level of support was categorized as high reciprocal support; if the average fell between 2.0 and 2.9, then the relationship was categorized as reciprocal support.) This exception happened 4 times during the examined timeframe: 0 times during the Chair 1 period, twice during the Chair 2 Period, and twice during the Chair 3 period. Board members that supported less than 2 motions of another board member have no support edges represented in the visual diagrams (see Figure 4 and Figure 5).

Qualitative Analysis

Stakeholder interview field notes and verbatim transcripts of the HITE-CT Board meetings were coded and analyzed using an iterative inductive and deductive process using the qualitative software Atlas.ti 7.1.7.[16] Coding of the board meetings was prioritized by focusing on the initial startup phase of the HITE-CT Board (October & November of 2010), the vendor selection phase (April – August 2011) and the current status of the board (October 2013-January 2014) which is when the writing of this report began. This was followed by coding of every other monthly meeting from November 2010 through October 2013. The meeting transcripts provided narrative accounts of public operations and communications of the board as well as descriptive accounts of interagency relationships. Stakeholder interviews provided first hand perceptions of the success and challenges associated with the HIE initiative.

Limitations

One significant limitation to the stakeholder evaluation is that there is only one cycle of in-depth stakeholder interviews. Though the interviews conducted revealed many challenges that persisted throughout the HIE initiative, it would have been informative to engage these same stakeholders for another set of interviews in the last year of the ONC grant. Not only would this give insight to the different stages of the collaboration, but it would also enable one to observe changes over time. Field-notes were used to document interview responses, and as such may be subject to memory and potentially unconscious bias of the interviewer. The sample of respondents was small, even though the stakeholders interviewed included representatives from the various subcommittees and stakeholders from the board of directors as well as non-board members. Furthermore, our content analysis was limited to the full board of director meetings, as these were the only meetings where transcription services were employed. Though most actions of HITE-CT were voted on in the full board meetings, the Executive Committee was given authority to make many time sensitive and high priority decisions on several key issues discussed in separate meetings. Matters discussed in Executive Committee meetings include: general hiring, vendor selection discussions, legal vendor issues, sustainability, and decisions related with contractual negotiations. Also, any concerns discussed in executive session are not included in this evaluation, as transcription services were turned off for confidentiality. Executive sessions were held to discuss issues related with personnel, litigation, security, or exempt documents. Content from any subcommittee meetings and executive sessions are not included in this analysis. Though transcripts are not available from the executive or subcommittee meetings, brief minutes are available and further analysis of these could add additional insight.

Results

Advisory Committee Findings

The following section presents the preliminary results based on the data collected from the survey with the Health Information Technology and Exchange Advisory Committee (HITEAC), members between the period of July 2010 and September 2011.

Five advisory committee members out of 30 invitees responded to the survey. Limited data is being presented in this report to maintain respondents' confidentiality due to the low number of responses. There ratings on work accomplished by the Advisory Committee are summarized in Table 3.

Demographics: Of the five respondents that completed the survey, four were men, most had served on the advisory committee for 11-13 months and had missed no more than three meetings, and all were involved in some sub-committee work. The respondents' mean age was 52 years.

Table 3. Work Accomplished by the Advisory Committee and the Sub-committees

Work Accomplished by the Advisory Committee (N=5)	**Agree**	**Somewhat Agree**	**Disagree**
The advisory committee accomplished a significant amount	20%(1)	80% (4)	0%
The advisory committee was well constituted	60%(3)	40.0% (2)	0%
There were hidden agenda(s) present within the committee	0%	0%	100%(5)
The charge of the committee was clear and well-understood	60% (3)	40%(2)	0%
There was not enough time to get things done	40%(2)	20%(1)	40%(2)
My input was incorporated into the final strategic and operational plan submitted to the Office of the National Coordinated (ONC)	80%(4)	20%(1)	0%
Gartner did a good job of listening to comments and putting the Strategic and Operational plan together	60%(3)	40%(2)	0%
Work accomplished by Subcommittees (N=5)			
The sub-committee accomplished a significant amount	60%(3)	40%(2)	0%
The sub-committee was well constituted	80%(4)	20%(1)	0%
Most members of the sub-committee worked hard	40%(2)	60%(3)	0%
There were hidden agendas within the subcommittee	0%	40%(2)	60%(3)
The charge of the sub-committee was clear and well-understood	60%(3)	20%(1)	20%(1)
There was not enough time to get things done	60%(3)	0%	40%(2)
My input was incorporated into the final strategic and operational plan submitted to the Office of the National Coordinated (ONC)	100%(5)	0%	0%
Gartner did a good job of listening to comments and putting the Strategic and Operational plan together	80%(4)	20%(1)	0%

Two members were satisfied and three members were 'neither satisfied nor dissatisfied' with the work accomplished by the Advisory Board. Additionally, committee members identified a list of "good" things that happened as a result of creating the advisory committee.

- Development of a broad strategic plan
- Development of consent model
- Establishment of subcommittees for meaningful discussion
- Improved understanding of challenges presented by the state laws
- A great deal of stakeholder participation
- Securing of initial funding from ONC
- Beginning the education process

Freelisting results

Given the low response rate, we used freelist itself as the object of the study. The five members generated 25 words (Refer to Table 4), which have been grouped using a logic model framework. We grouped words into:

1. Words defining group characteristics
2. Words defining the input (process/method) made by the group to implement HIE
3. Words defining the outputs and outcomes of the work.

Table 4. Words Defining the Work Completed by the Advisory Committee

Group Characteristics		Methodology to Implement the HIE		Final Products of the Work (Outputs)
Consensus	Network	Consent	Planning	Steering policy
Deliberate	Participatory	Exploration	Preemption	Education
Focused (2)	Provide	Design	Process	Complete
Hard	content	Evaluate	Reality testing	
working	Expertise	Modeling	React to	
Measured	Thoughtful	Stakeholder view-point	proposals	
			Research	

The last question on the survey asked the advisory committee members to share their thoughts and the likely challenges for the new HITE-CT Board. The five members of the board shared the following thoughts, most of which can be characterized as setting a direction, a strong leader, and skilled staff.

- There is an immediate need for a CEO to set direction
- Funding, Transition, Hiring a CEO
- There is no current leader who is "devoted" to and knowledgeable about all the issues. Recruiting leadership and staff
- Need a strong chairperson
- It is important to quickly develop a functioning exchange
- Meeting attendance, long-term participation; funding; hiring Exec. Director
- Need to create an executive committee
- There is an immediate need for sophisticated legal counsel
- They need to reserve enough time and resources to accomplish tasks quickly
- They need to attend all meetings

- Don't let the perfect impede the good (i.e. "something" is better than waiting for perfection)
- There is still a huge knowledge/education gap about HIE and what it really is/should be - even amongst Board members
- Discussion and decision-making needs to improve
- Need to determine scope of services and how they relate to eHealth CT (REC)
- Unwillingness of Board members to express views and make decisions. FUNDING is a significant impediment. Lack of vision. Lack of State support/resources
- Developing, getting buy-in for and establishing a sustainable business model. Meeting the timeline expected for ONC regarding having an HIE capable of supporting Meaningful Use by the 2012 timeframe required for Stage 2 - so that providers can meet level 2 MU criteria

Stakeholder Interviews

Between May 2011 and January 2012, during the first full year of HITE-CT operations, we conducted 13 one-on-one stakeholder interviews. All but two of the 18 active board members were invited to take part in this evaluation. Nine board members agreed to participate and completed interviews, 1 was unable to keep the appointment, 6 did not respond to the invitation and there were no refusals. Eight interviews were conducted in person and one was conducted over the phone. Interviews averaged just over one hour in duration (range 36-100 minutes). As a result of these interviews, it was recommended by the board members to seek outside, local experts to participate in the evaluation, which resulted in an additional 4 stakeholder interviews with external professionals in the HIT field.

Of the 13 stakeholders who participated in the one-on-one interviews, 8 were voting board members of HITE-CT, 1 was a non-voting board member and 4 were other professionals with expertise and interest in Connecticut's HIE. The interviewed stakeholders represented various constituent groups and organizations with a vested interest in the local HIE initiative including: 3 state representatives (the Commissioner of Public Health, the Secretary of Office of Policy and Management and the Commissioner of Mental Health and Addiction Services) 3 public representatives (2 consumer advocates & 1 public health advocate) and 7 private stakeholders (a representative of a medical research organization; an insurer or representative of a health plan; a large employer or representative of a business group; a representative with Expertise with Federally Qualified Health Centers; the interim CEO of eHealth CT, a CEO of a national health care consulting and research company, and the interim CEO of HITE-CT) All of the external stakeholders attended public meetings of the HITE-CT Board, one served on the Special Populations subcommittee and 2 on the Legal and Policy subcommittee.

Stakeholder Attitudes towards HITE-CT

Most interviewed board members reported feelings of excitement and enthusiasm about being involved in a potentially transformative initiative with regards to health care and HIT in the state of Connecticut. Many expressed that the initiative was long overdue, though some feared that ONC goals and timeline were overly ambitious.

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State Agency Representatives

The three state agency representatives expressed generally positive feelings about HITE-CT. Though cognizant of the barriers the agency faced, these stakeholders remained hopeful about the success of the HITE-CT. All three were positive about the effort of the board members, particularly of the committee chairs. One representative stressed the importance of other state agency involvement with HITE-CT and that the agency become self-managing. Another expressed an interest to be more involved with the initiative, and felt she needed to make her intent known.

Public Stakeholder Representatives

The three public stakeholders expressed very different experiences and attitudes about HITE-CT. One was very positive about the composition of the board and felt that the "*board on the whole is great; right mix of expertise-technical, financial and clinical*". Another, on the other hand, felt very much 'out of the loop', that decisions were 'rigged' and made behind closed doors, which led to feeling of distrust. This board member felt unheard and at times disrespected and conveyed that HITE-CT was making 'horrible progress'. While a more satisfied stakeholder did not express personal feelings of contempt, it was mentioned that the consumer voice may not feel as important. None of the three public stakeholders served on the executive committee.

Concern about the extent of conflicts of interest (COI) on the HITE-CT Board, was raised by two stakeholders. They believed that the COI definition used was too narrow and that members with conflicts should not be allowed to give solicited expert advice in concept development, and if they did provide such advice, that they should abstain from voting. For example, one conflict raised pertained to allowing the hospital representative to vote on the consent model as the hospital was running an HIE that didn't allow patients to opt-out. This hospital would incur significant costs if they had to modify their hospital's consent policy to work with the state HIE, if it was different than the hospital policy. Another stakeholder was concerned with having an Insurance representative as Finance committee chair, as this member was on the board to represent the business

There were both apparent and real concerns that were raised about Board members and their conflicts of interest (COI) that were never addressed.

It was noted that there were a number of board members, that had also served or were serving on the eHealth board, and saw this was seen as a major conflict, as decisions made by each board would have significant impact on the services and business of the other agency.

perspective and not public interest. This stakeholder also noted that there were a number of board members, that also served or were serving on the eHealth board, and saw this as a major conflict, as decisions made by each board would have significant impact on the services and business of the other agency.

Private Stakeholders: HITE-CT Board Members

The private stakeholders had generally positive attitudes about the collaboration, though most expressed frustration with the slow progression of the initiative and lack of fiscal support from the state. "*Given the resources, it's been an impressive set of accomplishments to date.*" One board member felt that more collaboration was needed, stating that coordination across state initiatives was lacking. This person saw undue redundancy having forty people on different boards (HITE-CT and eHealth) dealing with the same issues.

Private Stakeholders: External Professionals

All three private, non-HITE-CT board members, were frequent attendees of the HITE-CT board meetings. Of these three stakeholders, two were very positive about the collaboration and its potential for success, while the other was dissatisfied with the leadership of the board and felt that though collaboration was necessary, it was not present. This stakeholder was hopeful though that more collaboration would occur with the addition of a Chief Executive Officer. Another stakeholder felt concern with the decision making authority of the subcommittees.

External stakeholders expressed need for more collaboration, they felt that HITE-CT would not be able to do everything on their own.

Overall, there was a wide range of responses concerning attitudes toward HITE-CT. In general, stakeholders who had more power and influence in the decision making, (i.e. Executive Committee members and the interim CEO) were most satisfied with process. The consumer advocates had the most ethical concerns and the private stakeholders seemed most discouraged by the slow progression.

Overall, there was a wide range of responses concerning attitudes toward HITE-CT. In general, stakeholders who had more power and influence in the decision making, (i.e. Executive Committee members and the interim CEO) were most satisfied with process. The consumer advocates had the most ethical concerns and the private stakeholders seemed most discouraged by the slow progression.

> *Developing an HIE is not for the faint of heart. (Mr. Courtway, Hospital representative, 02/15/11 Board of Directors Meeting)*

Stakeholder Satisfaction

Interviewed stakeholders were asked to rank their level of satisfaction with various state agencies, general public, level of motivation and skill sets of those involved, and resources allocated to HITE-CT. Most satisfaction was reported with the work done by the Board members (mean 4.0), followed by the initiative and work done by DPH (mean 3.88), and the skill sets of those involved (mean 3.64). Least satisfaction was reported with DSS contribution (mean 1.92), public involvement (mean 2.25), and the contribution from Gartner (mean 2.6), the

information technology research and advisory company that DPH contracted to facilitate the planning process. Please see Table 5 for the summary of responses.

Table 5. Stakeholder Satisfaction with Agencies, Motivation & Skill Sets

Overall Satisfaction *(1 very dissatisfied – 5 very satisfied)*	**N**	**Mean**
Level of Motivation of those involved	12	4.00
DPH	12	3.88
Skill sets of those involved	11	3.64
eHealth	7	3.14
Resources (federal)	12	3.00
Resources (state)	12	2.83
Gartner	10	2.60
Public Involvement	12	2.25
DSS	12	1.92

* 1 stakeholder had not attended any HITE-CT board meetings and didn't feel qualified to answer

HITE-CT Board Member Characteristics

The remainder of this evaluation focuses primarily on the board members of HITE-CT. Though the board was designed to have 20 seats, actual board membership varied throughout the timeframe of this analysis, due to changes in administration and resignations. At the start of HITE-CT operations in January of 2011, there were 19 active board members and 1 vacant seat for the representative of primary care physician whose practice utilizes EHRs. This seat was never filled throughout the duration of operations. Of the 19 active seats, there were 8 women, 17 voting board members and 2 ex-officio, non-voting members. Seven of the 19 seats were representatives of various state agencies, 9 were private sector stakeholders (4 physician or physician group representatives, 2 hospital or federally qualified health center representatives, 1 insurer or representative of a health plan, 1 representative with expertise with private sector HIE or HIT entity, and 1 legal representative with expertise in the field of privacy, health data security and patient rights) and 3 were public stakeholders (2 consumer advocates and 1 public health advocate). By October 2013, there were a total of six vacant seats on the board representing five resignations and one which was never filled.

By October 2013, there were a total of six vacant seats on the board representing five resignations and one which was never filled.

Stakeholder Contribution

Meeting Contribution

The chair and vice chair positions on the board played an integral role in leading the board of director meetings. Their attendance was near perfect and they had by far the most comments spoken throughout the duration of this evaluation. Mr. Carmody, the representative of an insurer/health plan was the most active in terms of making motions for board action (40

motions), followed by Dr. Buckman, a health care provider utilizing electronic HIE (23 motions), and Mr. Lynch, representative of a large employer representative of a business group (19 motions). Aside from the chair positions of the board, consumer advocate Ms. Kelley was the most engaged stakeholder with 750 comments made during the board of director meetings, followed by Mr. Carmody (681 comments) and Dr. Thornquist (400 comments), a physician in a small practice and unaffiliated with a large institution. Of the state agencies represented, it is evident that DPH had the largest role in the initiative, which was by design of the grant. Though DSS had excellent attendance at the meetings, they were not very engaged in discussions (175 comments) nor did they initiate many motions (10). The Lieutenant Governor's seat had less involvement than DSS, with 68.4% attendance, 129 comments and 5 motions. The two ex-officio and non-voting member representatives from the Office of Policy and Management and the Office of the Health Care Advocate attended meetings regularly (73.7% and 89.5% attendance respectively), though were not very engaged in board discussions. The least engaged state agency was the Department of Consumer Protection with only 18.4% attendance, 18 comments, and 0 motions. (See Table 6 for more details)

Though not encouraged, HITE-CT board members were allowed to call into meetings, and phone attendance would contribute to the quorum of the meeting. Phone attendance became more frequent each year, going from just 13.8% of meeting attendance in 2011 to 45.8% of meeting attendance in 2013. (See Table 7)

Table 6. HITE-CT Board Member Participation October 2010-January 2014

Appointee Name	Represents	Attendance* %	Phone Attendance** %	Total Comments***	Motions Made	Duration on Board (months)****
Tom Agresta, MD	Medical Research Organization	100.0	4.4	972	11	23
Mark Raymond Steve Casey†	CIO of BEST, Department of Administrative Services	100.0	11.1 6.7	438+203 641	0+ 18 18	38
Peter Courtway	Hospitals, an integrated delivery network or a hospital association	95.7	27.3	284	7	23
Daniel Carmody	Insurer or Health Plan	94.8	27.8	681	40	38
Jewel Mullen, MD, MPH, MPA Vanessa Kapral† Elizabeth Keyes† Marianne Horn† *Robert J. Galvin, MD, MPH, MBA*	Commissioner of Public Health	92.1	0.0	958+77+ 26+90+235 1386	7+0+4+ 0+0 11	38
John Lynch, MD	Large employer or business group	91.7	27.3	381	19	24
Roderick Bremby Mark Heuschkel†	Commissioner of Social Services	89.5	33.3 4.6	68 + 102 170	10+0 10	38
Barbara Parks-Wolf† ‡	Secretary of Office of Policy and Management	89.5	2.9	113	n/a	38
Lisa Boyle, JD	Attorney with background & experience in the privacy, health data security or patient rights	83.3	20.0	154	4	6
Angela Mattie, JD, MPH	Expertise in public health	81.6	41.9	261	11	38
Ronald Buckman, MD	Pharmacist or health care provider using electronic HIE	79.0	33.3	358	23	38
Brenda Kelley	Consumer advocate	76.5	7.7	750	11	34

Mark Masselli	Expertise with Federally Qualified Health Centers	76.3	55.2	302	9	38
Kevin Carr, MD	Background and experience with a private sector HIE or HIT entity	73.7	67.9	128	2	38
Victoria Veltri‡ Demian Fontanella† *Jamie Mooniе†‡*	Healthcare Advocate	73.7	16.7 30.0 100.0	18+13+10 41	n/a	38
Nancy Wyman Bettye Jo Pakulis†	Lieutenant Governor	68.6	66.7 4.8	22+107 129	0+5 5	35
Ellen Andrews, PhD	Consumer advocate	68.4	26.9	162	1	38
Steven Thornquist, MD	A physician who works under chapter 370 of the general statues who works in a practice of <10 physicians & who is not employed by a hospital, health network, health plan, health system, academic institution or university	55.3	0.0	400	17	38
John Gadea†	Commissioner of Department of Consumer Protection	18.4	0.0	18	0	38

† designee

‡ ex-officio non-voting member

* % of meetings attended (phone & in person) by appointee or designee/duration on board.

** % of meetings called into/total meetings attended.

***Number of comments spoken, regardless of length or relevance.

****Duration is calculated as the 1st meeting – last meeting attended, except for government officials, whose full term is calculated at 38 months. For government officials who terms started after board development, adjustments were made based on the date they were sworn into office.

Table 7. HITE-CT Board of Directors Average Meeting Attendance by Year

Year	attendance*(%)	phone attendance (%)
2011	82.2	13.8
2012	75.5	16.1
2013	75.2	45.8

*attendance rate includes both physical and phone attendance.

Committee Membership

In addition to varying levels of meeting participation, there was also a wide range of participation with regards to participation with regards to membership on the various subcommittees. The representative of a large employer a large employer or business group, Mr. Lynch, had the highest committee membership, serving on 5 committees, serving on 5 committees, followed by Mr. Carmody, Dr. Agresta, Dr. Carr, and Mr. Masselli who each served on 4 who each served on 4 committees. Mr. Raymond and his designee Mr. Casey also collectively served on 4 served on 4 committees. State agency representatives had minimal involvement in the subcommittees, aside from subcommittees, aside from the Chief Information Officer of the Bureau of Enterprise Systems and Technology and Technology (BEST) and his designee. The Lieutenant Governor and designee for the Commissioner of the Commissioner of the Department of Consumer Protection did not serve on any subcommittees. Likewise, the two Likewise, the two practicing physicians did not serve on any of the subcommittees. Time commitment, was likely commitment, was likely a barrier to committee membership, as these board members also did not respond to not respond to participating in the stakeholder interview. For full details on committee membership and membership and committee activity, see Table 8,

Table 9, Figure 1, Figure 2, and Figure 3. Table 8 lists the committees served on by each board member. The figures display committee membership by both stakeholder and committees. Figure 1 displays membership to all the standing and ad hoc subcommittees; Figure 2 displays membership in the infrastructure subcommittees and Figure 3 displays the patient/consumer committee membership.

Table 8. HITE-CT Board Member Governance & Committee Membership

Appointee Name	Represents	Committee
John Lynch, MD	Large employer or representative of a business group	Committee Total: 5 Executive **Legal & Policy-Chair (2)** Consent Personnel Business & Operations*
Daniel Carmody	Insurer or Representative of a Health Plan	**Board-Secretary** *(10/10-current)* Committee Total: 4 Executive **Financial-Chair** Sustainability Consent
Tom Agresta, MD	Medical Research Organization	**Board-Vice Chair/Treasurer** *(10/10 – 08/12)* Committee Total: 4 **Executive-Chair** Consent Business & Operations* Technical Infrastructure
Kevin Carr, MD	Background and experience with a private sector HIE or HIT entity	Committee Total: 4 Executive **Business & Operations*-Chair** Sustainability Financial
Mark Masselli	Expertise with Federally Qualified Health Centers	Committee Total: 4 Executive **Special Populations-Co-Chair** **Personnel-Chair** Sustainability
Mark Raymond Steve Casey†	CIO of BEST, Department of Administrative Services	**Board Chair** *(10/13-current)* **Board-Vice Chair** *(02/13-09/13)* Committee Total: 4 Executive Sustainability Patient Privacy & Security† Technical Infrastructure†
Peter Courtway	Hospitals, an integrated delivery network or a hospital association	Committee Total: 3 Executive **Technical Infrastructure-Chair** Consent

Appointee Name	Represents	Committee
Brenda Kelley	Consumer or consumer advocate	Committee Total: 3 **Special Populations-Co-Chair** Legal & Policy Consent
Ellen Andrews, PhD	Consumer or consumer advocate	Committee Total: 3 Legal & Policy Consent Patient Privacy & Security
Angela Mattie, JD, MPH	Expertise in public health	Committee Total: 2 Legal & Policy Personnel
Lisa Boyle, JD	Attorney with background & experience in the privacy, health data security or patient rights	Committee Total: 2 **Legal & Policy-Chair 1** Consent
Jewel Mullen, MD, MPH, MPA VanessaKapral† Elizabeth Keyes† *Robert J. Galvin MD, MPH, MBA*	Commissioner of Public Health	**Board-Chair** *(02/11-10/13)* Committee Total: 1 Executive
Barbara Parks Wolf†‡	Secretary of Office of Policy and Management	Committee Total: 1 Special Populations
Victoria Veltri‡ Demian Fontanella† *Jamie Moonie*	Healthcare Advocate	Committee Total: 1 Patient Privacy & Security
Roderick Bremby	Commissioner of Social Services	Committee Total: 1 Sustainability
Steven Thornquist, MD	A physician who works in a practice of <10 physicians & who is not employed by a hospital, health network, health plan, health system, academic institution or university	Committee Total: 0
Ronald Buckman, MD	Pharmacist or a health care provider utilizing electronic HIE	Committee Total: 0
Nancy Wyman Bettye Jo Pakulis†	Lieutenant Governor	Committee Total: 0
John Gadea†	Commissioner of Department of Consumer Protection	Committee Total: 0

† designee
‡ ex-officio non-voting member
*Membership on the Business & Operations Committee is included, although the committee never assembled.

Table 9 displays the activity of each of the standing and ad hoc advisory committees during this evaluation timeframe. The Executive Committee had the most meetings (47) followed by the Board of Directors (44), Legal and Policy (36), Technical and Infrastructure (28) and Finance (16). Also noted in the table is the number of times that committee meetings were cancelled. The reason for most cancellations was the inability to meet quorum. The Business and Operations committee was unable to achieve the membership it needed to officially assemble, and thus never had any public meetings. The Advisory Committee on Patient Privacy and Security was the most active of the ad hoc committees, having met 13 times. The other 3 ad hoc advisory committees had minimal meetings. The Personnel Search Committee met twice, Consent once, and the Sustainability Working Group met once.

The Business and Operations committee was unable to achieve the membership it needed to officially assemble, and thus never had any public meetings.

Table 9. HITE-CT Board & Committee Meeting Activity October 2010-January 2014

Board & Committees	# Meetings Occurred	# Meetings Cancelled
Board of Directors	44	7
Standing Core Committees		
Executive	47	3
Legal & Policy	36	10
Technical Infrastructure	28	8
Finance	16	1
Special Populations	9	0
Business & Operations	**0**	n/a
Ad Hoc Advisory Committees		
Advisory Committee on Patient Privacy & Security	13	0
Personnel Search Committee	2	0
Consent	1	0
Sustainability Working Group	1	0

Figure 1. HITE-CT Board of Directors: Committee Membership

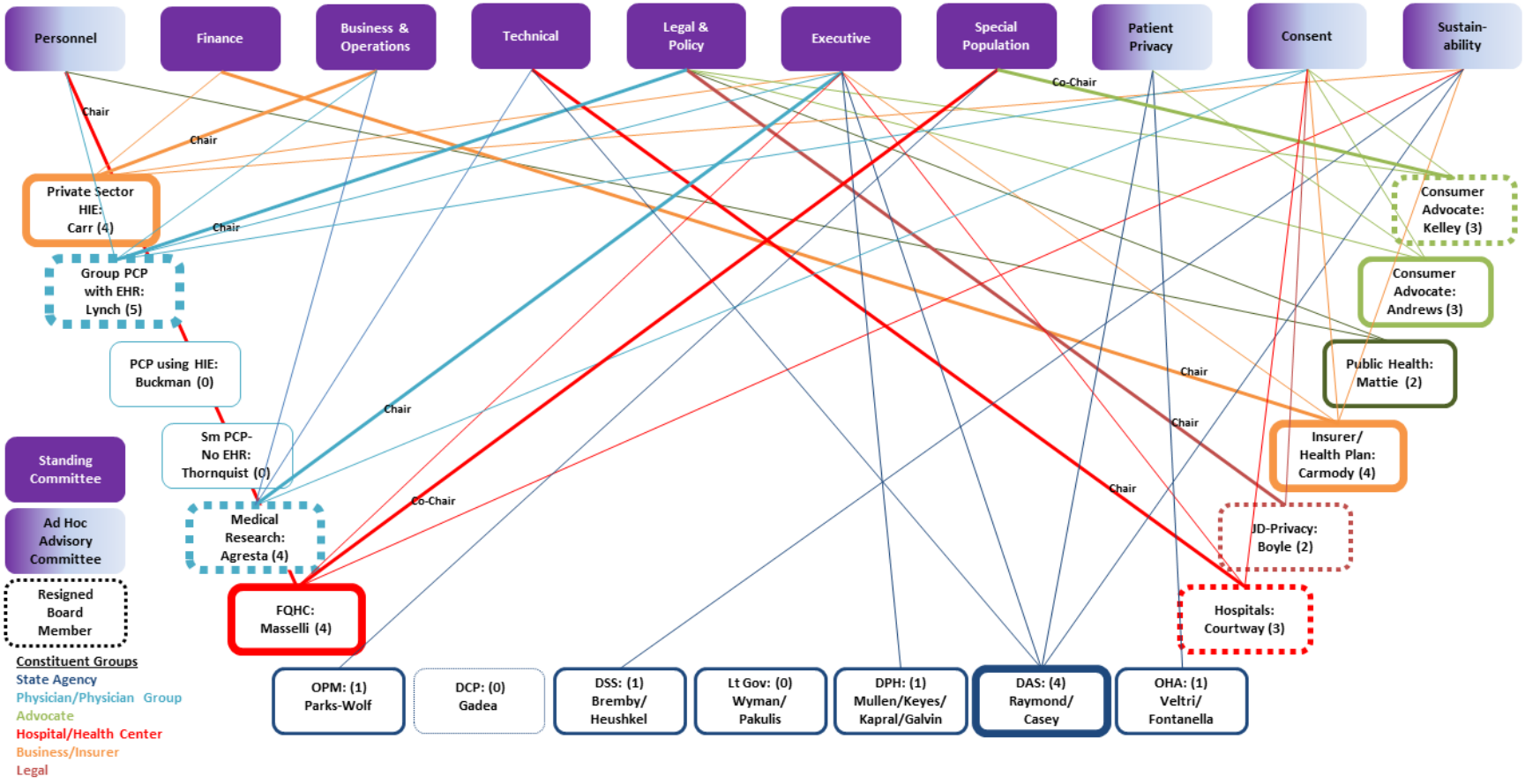


Figure 2. HITE-CT Board of Directors: Infrastructure Committee Membership

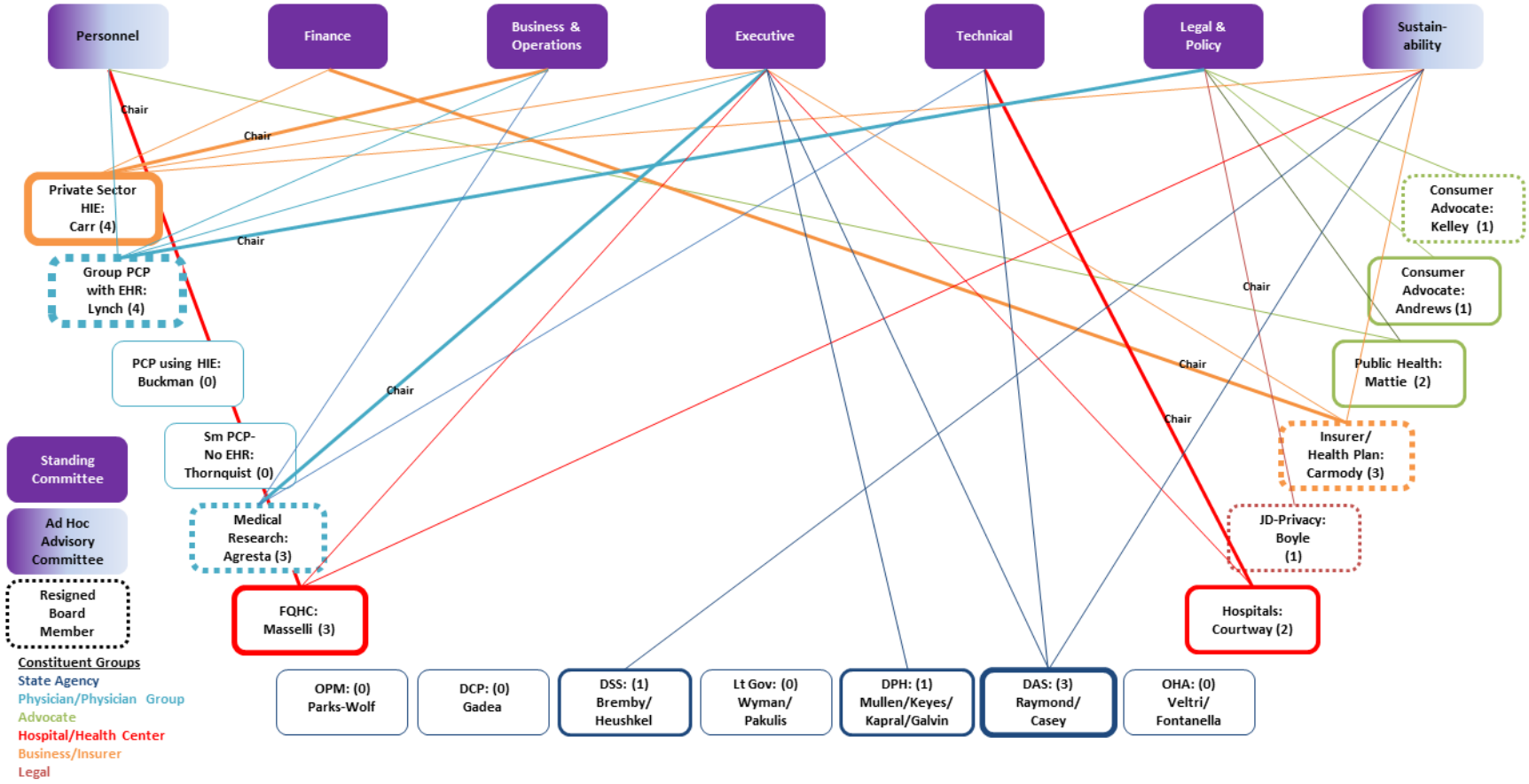
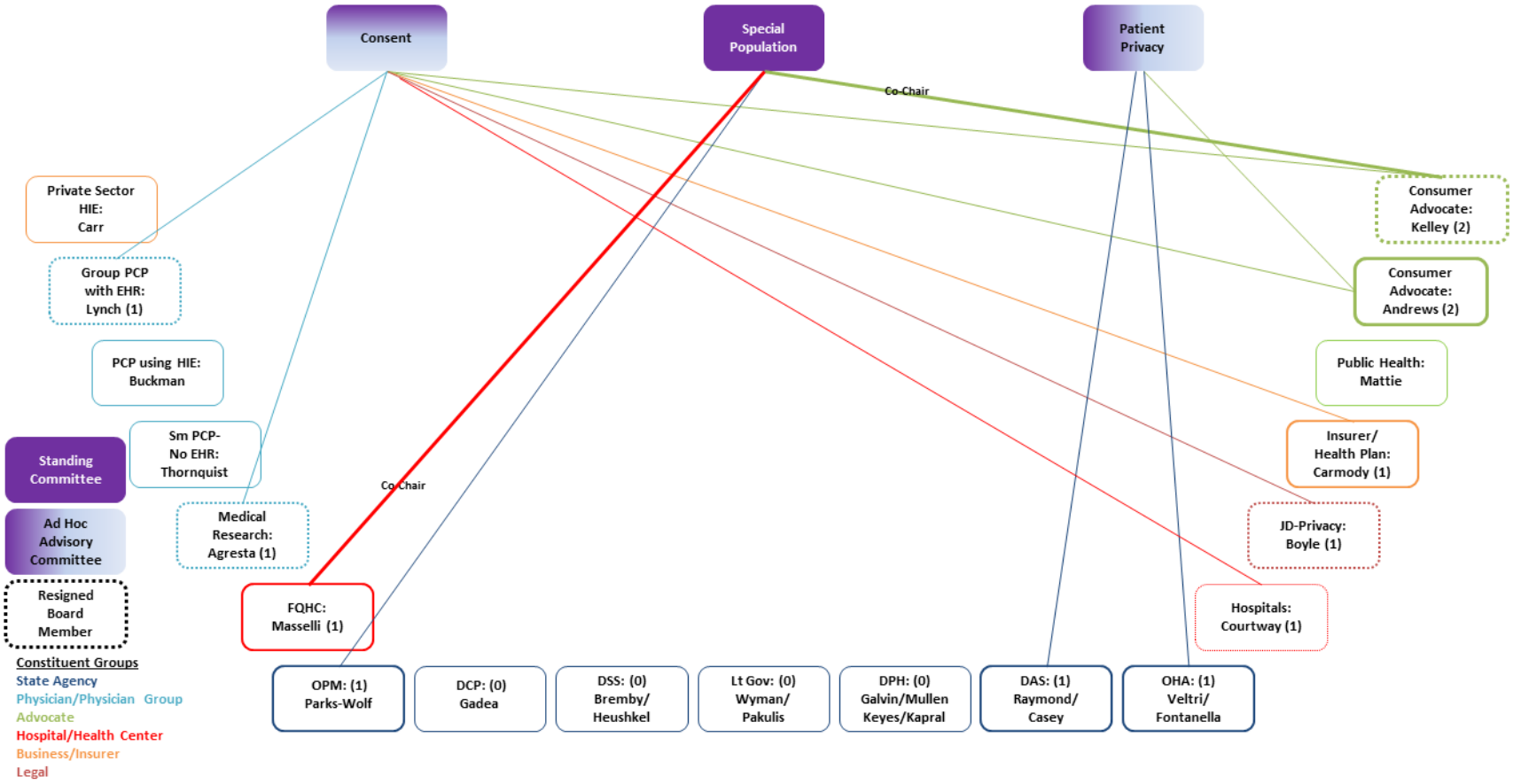


Figure 3. HITE-CT Board of Directors: Patient/Consumer Committee Membership



Collaboration: Within HITE-CT

Level of integration

We asked interviewed stakeholders to respond to a series of collaboration questions based on Gajda's Strategic Alliance Formative Assessment Rubric.[4] The rubric was designed to reach consensus among group members in a workshop format on their current level of organizational integration. But, we used the rubric to capture individual perceptions of HITE-CT's integration level. It is important to note that many stakeholders felt that HITE-CT did not fit solely into one defined category, but rather had characteristics of multiple levels of integration. Due to this, the number of responses for each domain is greater than the sample size, and therefore we did not assess a mean score for the four domains of integration (purpose, strategies and tasks, leadership and decision making, and interpersonal communication).

The responses indicate moderate levels of integration for HITE-CT during their initial year of operation (see Table 10). When asked about the purpose of HITE-CT, most respondents felt that the purpose was to both create a web of communication (level 1-networking) and to work together to ensure tasks were done (level 2- cooperating), which indicate low levels of integration. Strategies of the HITE-CT collaborative indicated higher integration than the purpose with most (69.2%) responding that HITE-CT had a central body of people with specific tasks (level 3-partnering), followed by specific and complex strategies and tasks identified (46.2%), (level 4-merging). With regard to leadership and decision-making of HITE-CT, 46.2% felt that there was autonomous leadership with decision-making mechanisms in place (level 3-partnering), and likewise, 46.2% felt that there was strong leadership with a shared delegation of roles and responsibilities (level 4-merging). As for interpersonal communication within the organization, most stakeholders felt that there was a communication system in place with formal information channels (53.8%), which is reflective of partnering (level-3). Overall, HITE-CT stakeholders represented low integration levels (networking and cooperating) in their reflection of HITE-CT's purpose. However, in regard to its strategies, leadership and decision-making, and interpersonal communication, almost half the respondents rated HITE-CT's integration at the higher levels of partnering and merging.

Table 10. Stakeholder perceptions of HITE-CT Collaboration

Domains of Collaboration	N	%
Purpose of HITE-CT		
Creating a web of communication	9	69.2
Working together to ensure that tasks were done	9	69.2
Sharing Resources to address common issues	5	38.5
Merging Resources to create or support something new	5	38.5
Strategies of HITE-CT		
Loose or no structure	1	7.7
Minimal structure	4	30.8
Central body of people with specific tasks	9	69.2
Specific and complex strategies and tasks identified	6	46.2
Leadership & Decision Making of HITE-CT		
Minimal or no group decision-making	0	0.0
Non-hierarchical, decisions tend to be low stakes; voluntary leaders	4	30.8
Decision-making mechanisms are in place; autonomous leadership	6	46.2
Sharing and delegation of roles and responsibilities; strong leadership	6	46.2
Interpersonal Communication within HITE-CT		
Communication among members infrequent or absent	1	7.7
Some degree of personal commitment and investment; communication informal	4	30.8
Communication system and formal information channels	7	53.8
Communication is clear, frequent and prioritized	3	23.1

Stakeholder Support: Interpersonal

To measure relationship strength among board members and their representative constituencies, we used an objective measure based upon the motions made and supported amongst board members during the monthly HITE-CT board of director meetings. Refer to Figure 4 and Figure 5 for full details.

Board of Director Support: Chair 1 & 2 Period (Oct 2010 – Jan 2013)

Most state agency representatives took a back seat when it came to early decision making on the board. Bureau of Enterprise and Systems Technology (BEST) a bureau of the Department of Administrative Services (DAS) was the most involved of the state agencies (17 motions) followed by DPH (7 motions). The lieutenant Governor's office seat initiated 1 motion, while DSS and DCP initiated 0. There was very low attendance from DCP and when present, the level of participation was low. The lieutenant governor's office had better attendance but they showed very little involvement in decision making. Additionally, there was very little support between state agencies, with only 2 motions supported of DPH by DSS throughout the first two chairmanships. Though DPH was very involved in the administration of HITE-CT, the chair of the board and her representatives did not lead HITE-CT actions, which is in-keeping with the status of a quasi-state agency.

Mr. Courtway opposed the development of a working group for patient-consent and consumer advocate, Ms. Andrews and Mr. Carr, private sector HIE representative, opposed the final decision for an opt-out consent model with a strong educational component.

The most active seats in the first 26 months of the board were the insurer/representative of a health plan, Mr. Carmody from Cigna, and the representative of a large business group, Mr. Lynch from ProHealth. Mr. Carmody moved 32 motions; Mr. Lynch moved 19, and there was high reciprocal support between these two board members. Mr. Casey from BEST was the third most active member on the board and also the most involved state agency when it came to decision making. Mr. Carmody has the most supportive ties (8), followed by Mr. Lynch (5) and Mr. Casey (4). These 3 board members played a significant role in the start-up phase of HITE-CT and were high reciprocal supporters of each other. This strong relationship is highlighted in the diagram in the bold triangle (See Figure 4).

Mr. Carmody moved 32 motions; Mr. Lynch moved 19, and there was high reciprocal support between these two board members. Mr. Casey from BEST was the third most active member on the board and also the most involved state agency in decision-making.

Public representatives had the most dissention when it came to HITE-CT decision making within the group. Three of the seven oppositions from the first 26 months of HITE-CT operations concerned the consent model. Mr. Courtway opposed the development of a working group to assist with the decision making around the consent model, and consumer advocate, Ms. Andrews and Mr. Carr, private sector HIE representative, opposed the final decision for an opt-out consent model with a strong educational component. Other oppositions included Mr.

Carmody opposing of Dr. Buckman's motion to select Bank of American as the bank of HITE-CT without doing comparative research. Also, Ms. Andrews opposed Mr. Courtway's motion to post the CEO position, as she believed the job description needed more emphasis on public engagement and also believed the salary was too high. Ms. Kelley opposed Mr. Carmody's motion to authorize the Chief Executive Officer with the Executive Committee and attorney to re-negotiate the contract with Axway to provide the core services of secure messaging transport formation, public health reporting, and provider directory and to report back to the Board of Directors (BOD), as necessary. Ms. Andrews also opposed Dr. Thornquist's motion that the Participation Agreement between the pilot sites for the HIE and HITE-CT be forwarded to the Executive Committee for final decision and ratification at the next BOD meeting.

Board of Director Support: Chair 3 Period (February 2013-January 2014)

During the third chairmanship of the board, the Chair and Vice Chair positions tended not to initiate motions for HITE-CT actions, though they did play an integral role in soliciting motions when discussions plateaued or would continue without resolution. In this later portion of HITE-CT operations, DSS was the most active state agency with regards to initiating HITE-CT decision making (10 motions) and had the most supportive ties (3). Also, there was more support between state agencies than in the earlier stages of operation, as seen through the reciprocal support between DSS and DPH and the Lieutenant Governor's representative's support of DSS motions. DCP remained unseen in decision making of the board, neither initiating nor supporting board motions.

Mr. Carmody continued to initiate some HITE-CT action, though not nearly as much as in the earlier stages. Dr. Buckman and Dr. Thornquist, the two practicing PCPs on the board, initiated most motions, though Dr. Buckman had more supportive ties (4) than Dr. Thornquist (2). Mr. Carr, on the other hand, was an executive committee member who did not initiate or support more than 1 motion during this period. The consumer and public health representatives were not very supportive of decision making on the board, during the 3rd chairmanship, with the only support being between Ms. Kelley and Dr. Thornquist.

There was much less opposition during the Chair 3 timeframe. The one opposition during this timeframe came from a public representative who opposed Dr. Buckman's motion to authorize the Executive Committee to put the Voucher Plan into action with a budget limit of $270,000, contingent on the approval of the revised MOA with DPH. Consumer advocate, Ms. Kelley's concern was about the privacy of patient data in the proposed voucher plan, as she felt it lost its focus on consumer education, which she deemed necessary with the agency's consent model.

Figure 4. HITE-CT Board of Director Support*: Chair 1 & 2 Period (October 2010 - January 2013**)

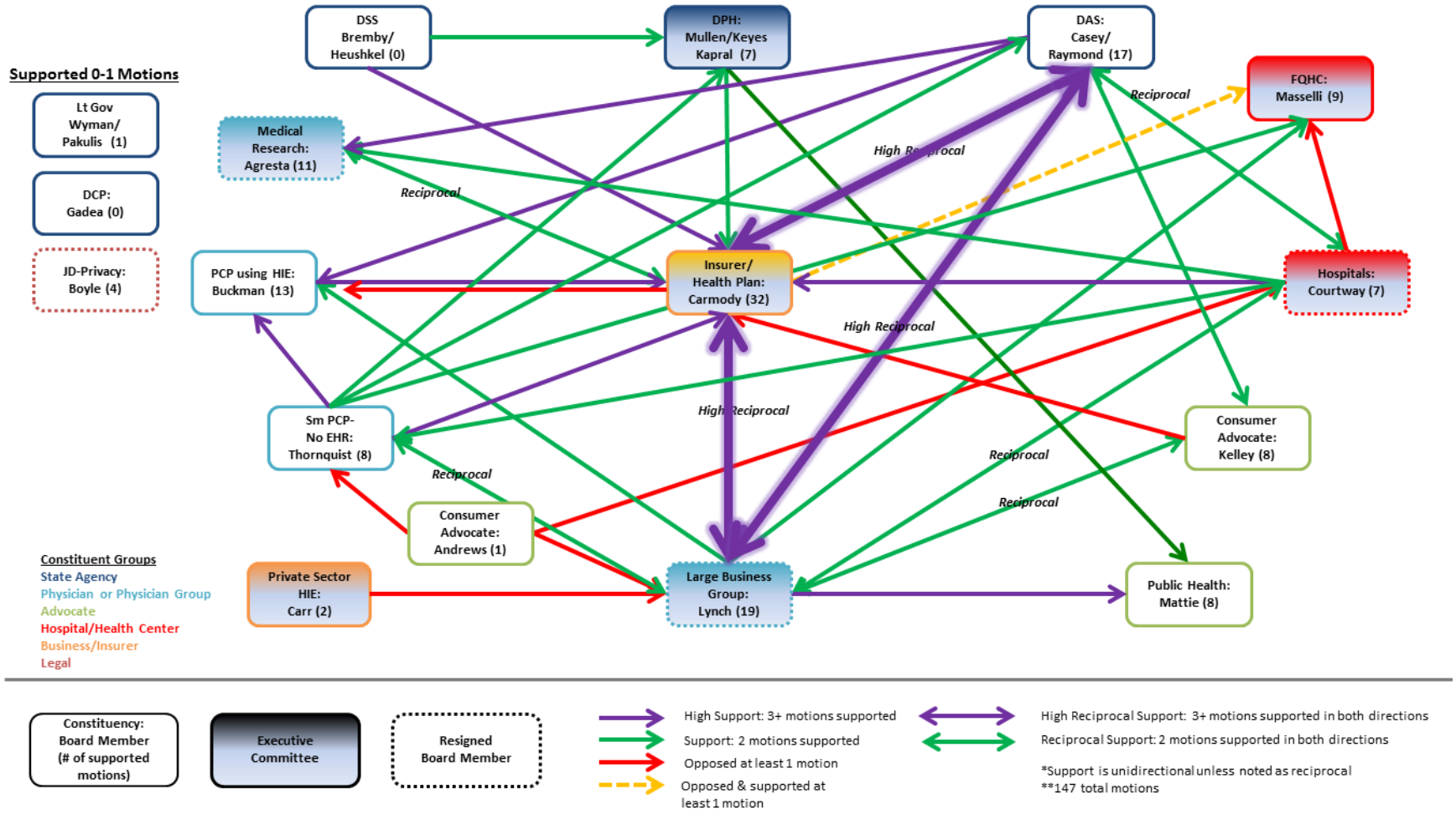
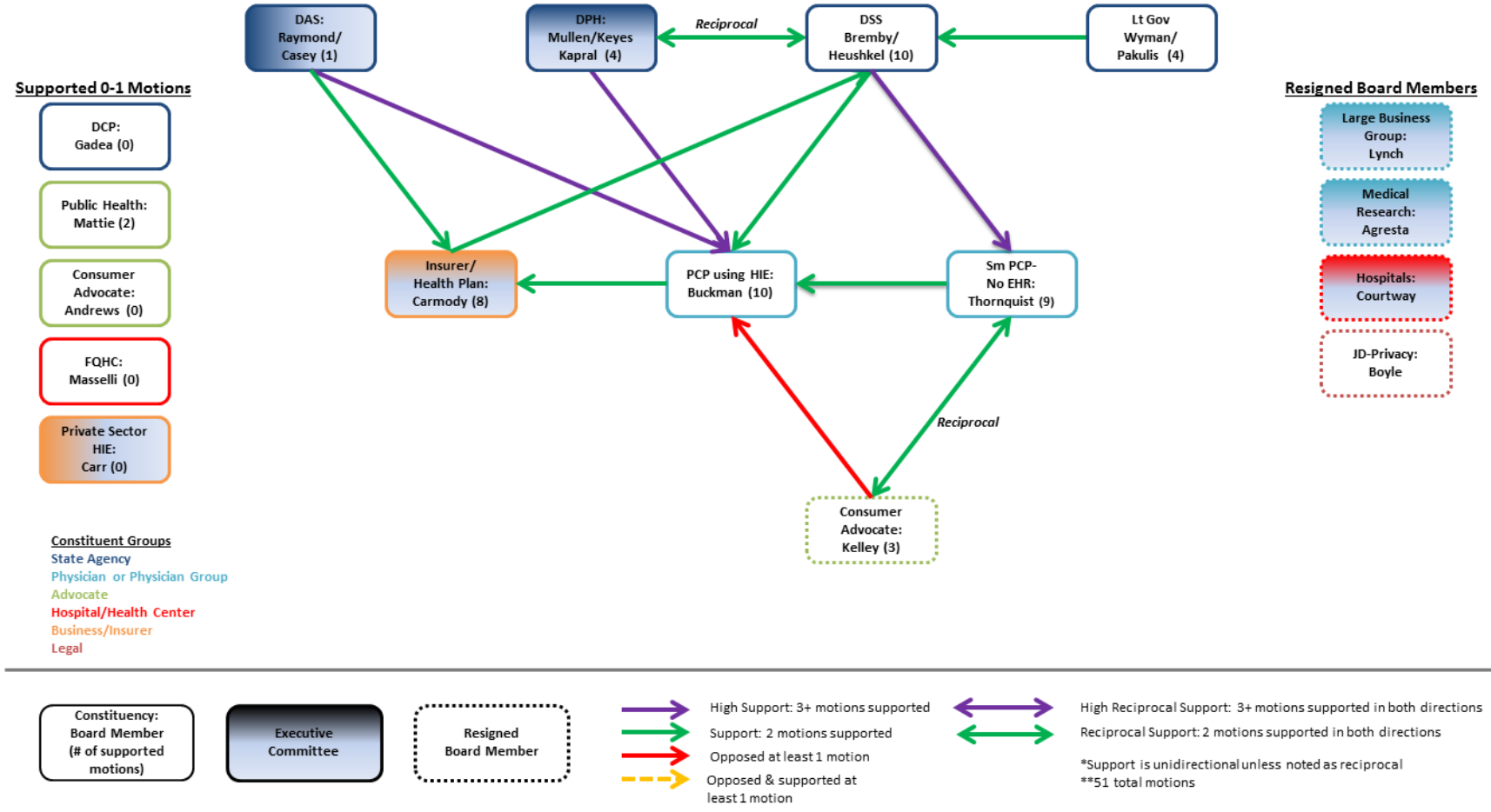


Figure 5. HITE-CT Board of Directors Support*: Chair 3 Period (February 2013-January 2014)



External Collaboration

3C3 Organizations: HITE-CT, DPH, DSS, eHealth and Capital Community College

HITE-CT was structured to have formalized coordination with other ONC funded HIT programs. The entities included in this group were: HITE-CT, DPH, DSS, eHealth Connecticut and Capital Community College. This group of organizations was named the '3C3 Team' emphasizing the importance of communication, collaboration and cooperation. Representatives from each organization were scheduled to meet monthly to share advancements and challenges with HIE implementation. A primary goal of the 3C3 meetings was to find opportunities for leveraging the resources of each organization for efficiency and cost sharing.[1]

DPH: As the grantee of the ARRA Cooperative Agreement, DPH was the lead organization charged with establishing a statewide HIE and was responsible for developing the *2010 Connecticut Strategic and Operational Plan for Health Information Exchange*. On January 1, 2011, HITE-CT became the state designated entity for health IT in Connecticut and took on the responsibility of implementing the State Plan. DPH played a significant role supporting HITE-CT during this transition period and assisted with the submission of a revised HITE-CT Strategic and Operational Plan to ONC that would release funds to staff the agency, once approved. The Commissioner of Public Health served as chair of HITE-CT until October of 2013, when the chairmanship was legislatively turned over to the state's Chief Information Officer. DPH was responsible for managing and administering the ONC Cooperative Agreement, including the contract with HITE-CT that provided partial funding of start-up costs.[1,17]

DSS: As the state agency responsible for administering the Medicaid program, DSS played an active role in the HITEAC, participating on the board of directors and the subcommittees to ensure CT's HIE would support Medicaid needs. The collaboration between HITE-CT and DSS would ensure the integration of DSS's State Medicaid HIT Plan (SMHP) into the statewide HIE ensuring widespread adoption of EHRs and achievement of meaningful use by eligible providers. As a member of HITE-CT board of directors, the commissioner of Social Services was to provide oversight for the promotion of long-term sustainability of HITE-CT. Additional roles of DSS were to collaborate with eHealth's Regional Extension Center (REC) to encourage and support the adoption of EHR technology and HIE, and also to seek and coordinate CMS funding as appropriate.[1,18]

eHealth: In 2010, eHealth was awarded $5.75 million from ONC Regional Extension Center (REC) grant program to assist 1,308 primary care providers with the selection, implementation, and achievement of meaningful use of EHR systems. This would include connecting providers to a statewide HIE to facilitate the secure sharing of patient data. As part of the CT HIE Strategic Plan, HITE-CT would collaborate with the REC to encourage and support the adoption of EHRs/EMRs and the HIE. eHealth Connecticut is a not-for profit entity that was incorporated in January 2006 and operates virtually with no-employees. For the ONC's REC grant, funds were administered through Qualidgm and work was performed through a for-profit organization SMC Partners, whose President Mr. Cleary served as the interim CEO of e-Health. SMC Partners administered the REC services through the assistance of over 10 Direct Assistance Contractors (DACs).

Mr. Cleary, interim CEO of eHealth, regularly attended HITE-CT board meetings and often offered opportunities to build on the existing partnership with HITE-CT. For example, during a 3C3 partner update at the August 2011 board meeting, he offers assistance with building public trust by using eHealth's field staff that work directly with providers.

> *As you think about it, this is one of the three areas of collaboration… how are we going to reach out to the provider community and attract them to the HIE and help them plug into the HIE. You can use us to do an awful lot of that. Number one, to carry the message, and then, number two, to know something about the providers, and maybe there's even something more we can do in your on-boarding process to leverage the system we have in place and the relationship, the trusting relationships that we have and are trying to build with those providers. So that's kind of collaboration opportunity number one. It's just use us, since we and our direct assistance contractors are the boots on the ground in the field every day. Once you have your messages and once you have your sales pitch, once you have anything, your policies and so on, you can use us to help spread the word... let's work together for leverage and things that we have in place….figure out how we share resources and all that goes with it, because that's what we know we're all about.* (08/15/11 Board of Directors Meeting)

Capital Community College (CCC) is a member of a 12-state community-college based consortium in HIT that was awarded ARRA funding in order to implement HIT workforce development. This program was funded to train 300 information management specialists and clinicians in the field of health informatics to prepare a workforce prepared for building the state's HITE capacity.[1]

In addition to the purpose of leveraging resources, one success that came out of 3C3 collaboration was the HIE and HIT educational conference, 'Connecting Connecticut' that the 3C3 organizations co-hosted in October of 2011. HITE-CT's vendor, Axway, was the lead sponsor for this full day conference, where they exhibited an HIE connectathon demonstration with GE, displaying the possibilities for Connecticut's HIE, which was attended by more than 100 attendees. Following the conference, the Interim CEO of eHealth tries to build on the collaboration and suggests that the group continue "*meeting and turn our attention to some of these bigger issues in keeping this communication, this unified messaging fresh... maybe a bi-weekly kind of a rhythm would make sense to me.*" (10/24/2011 Board of Directors Meeting)

During discussions of HITE-CT's implementation plan, Mr. Carmody, the Insurer/Health Plan representative, highlights the importance of the collaboration between the agencies:

> *As we work through our implementation plan… do you think we will look to get an integrated communication plan on what DSS is doing, what e-Health is doing and what we're doing to make sure we are coordinating all of those so that we understand exactly how that effort is going to come together? I mean, that's the big TBD when we start to drive at this adoption piece... that's sort of the nits and nats that need to be tied up otherwise it will continue to be run as an individual stream when the reality of it is we're all talking to the same people. And so unless we have it well coordinated of, this is where these are at and we just sort of merge these and say this is how we're going to go after, this*

is going to be the most effective, then we will continue to always have three different pieces talking to the same people and it will just feel like noise versus how it all comes together. (10/24/11 Board of Directors Meeting)

Though interagency stakeholder meetings were held with the intention to leverage each other's strengths, little collaboration occurred after the Connecting Connecticut conference in October 2011. Though HITE-CT was set to collaborate with eHealth's REC to encourage and support the adoption of EHRs/EMRs and the HIE, the technology never reached full implementation for this collaboration to occur. Several board members expressed disappointment with the level of state agency involvement and collaboration during the initial stages of HIE planning. In the last year of the ONC grant, DSS played a major role and also signed a contract for use of a standards based Provider Directory covering the period of March 15, 2014 to June 30, 2014. This gives HITE-CT the ability to seek assistance from the state of Connecticut, starting in the state fiscal year 2015.

Axway

In September of 2011, the Executive Committee finalized a contract with Axway to develop a full service Health Information Exchange for HITE-CT. The first phase of the project included a demonstration project for the HIT Summit, followed by setting the test environment for the HIE. The high cost of the full service HIE which exceeded the amount of operating funds of HITE-CT created an immediate funding gap, which placed the agency in a situation of more debts than assets. Though Axway knew of the funding timeline and agreed to the contract, they were unwilling to negotiate a workable compromise that would have allowed HITE-CT to continue operations without going into debt.

In October of 2012 all work related to the Axway contract ceased and in January of 2013, Axway filed a lawsuit against HITE-CT for breach of contract. As a result of these contract negotiations, no progress was made for over one year until a new contract was agreed upon and signed in December 2013, at which point all charges against HITE-CT were dismissed. This new contract includes services for a provider directory, EMPI *(Enterprise Master Patient Index)* products and EPI servers.

In October of 2012 all work related to the Axway contract ceased.

In January of 2013, Axway filed a lawsuit against HITE-CT for breach of contract.

No work was accomplished for over a year.

A new contract was agreed upon and signed in December 2013, at which point all charges against HITE-CT were dismissed.

This new contract includes services for a provider directory and EMPI *(Enterprise Master Patient Index)*.

Rhode Island Quality Institute Partnership

In June of 2013 HITE-CT entered a partnership with the Rhode Island Quality Institute (RIQI) to promote interstate secure Direct communication between providers. As a result of this partnership, CT providers would have had access to Rhode Island's Direct vendor marketplace and would be eligible to enroll in the Southern New England Trust Community (SNETC).

After just 5 months of a partnering with HITE-CT, RIQI canceled its contract in November of 2013. This was a significant loss for the agency as this collaboration would have helped HITE-CT stand DIRECT, which was the primary requirement of ONC. This withdrawal off support was indicative of the lack of faith in HITE-CT's viability, as HITE-CT CTO, Mr. DeStefano describes below:

> *Rhode Island Quality Institute, has decided that they'd like to cancel the contract that we have with them for the procurement of services around certificates for the Southern New England Trust Community… given the late date and the fact that the grant is coming to an end, they don't see the value in it per se anymore between us -- between HITE/CT and RIQI.* (11/05/13 Board of Directors Meeting)

Challenges and Barriers associated with HITE-CT

Structural

Quasi-Public Agency

One challenge the board faced was figuring out how to effectively work within the confined nature of the quasi-public agency structure. The HITE-CT bylaws are explicit stating that "*any lawful business of the Authority shall be held in accordance with a schedule of meetings established by the Board or such Committee*".[14] The meeting schedule of HITE-CT was required to abide by the Connecticut Freedom of Information Action, "*including without limitation applicable requirements relating to the filing with the Secretary of the State of any schedule of regular meetings and notices of special meetings, meeting notices to board members and Committee members, public meeting requirements, the filing and public availability of meeting agenda, the recording of votes and the posting or filing of minutes, the addition of agenda items at any regular meeting, and the holding of any executive session*".[14]

This structure put constraints on board members ability to communicate and take action between meetings, as Ms. Horn, legal counsel for DPH, explains at the inaugural meeting:

> *e-mailing back and forth on matters that are of issue to this Committee would constitute a meeting and is not allowed under the Freedom of Information Act….* (which) *tends to happen when we send something out that will be discussed in a meeting and people just get excited and start just talking about it electronically and the public can't observe that and they can't plug into it, so it's not allowed.* (10/18/10 Board of Directors Meeting)

Board Membership

Though some board members found the composition of the board impressive, many raised concern about need for broader representation. Representatives mentioned to be lacking from the board included smaller health care organizations, specialists, school-based health centers, veteran organizations, convalescent and nursing homes, legal assistance, more providers, providers that provide sensitive services (mental health and infectious disease), a medical association representative, someone from the American Civil Liberties Union and advocates for the opt-in consent model. Not only was representation debated, but also the process of member selection. One of the public representatives recommended a serious process, minimally an interview to select board members. This board member found it concerning that her appointer did not even know her personally.

An additional challenge faced by the board members was finding appropriate ways to fulfill their board role as a constituency representative. A critical factor for the success of the HIE is to have an in-depth understanding of the needs of its customers and the cost of services. The lack of a customer base was the downfall of the technology purchased from Axway, which was mostly driven by the interim-CEO who did not understand Connecticut's readiness for IHE profiles based infrastructure. The board members were unable to engage with and advocate to the board on behalf of their constituents. One private stakeholder expresses the need for a real perspective on what the hospitals (the largest customer for the technology) wanted before developing the technology so that it could be tailored to the customer's budget and the cost of service would be worth the value. Though hospitals stated a need for a functional HIE, HITE-CT's technology wasn't their only option; HITE-CT needed to make it their best option in order for the agency to survive. This stakeholder summarizes this ill-fated sales plan: "*we give you Acura or Honda, but they may only want a Kia*". Though this stakeholder identified the lack of perspective on the customer base, he also states that he wasn't clear on how to best represent his constituency as there is no structure in place for this communication. "*If you're supposed to be a representative that implies that there is a forum for that representative to communicate with their constituents.*" For him specifically, this channel of communication was unclear.

Withdrawal of Support

Board Membership - Declining membership was also a problem that exacerbated the challenge for sufficient constituent representation. The first board resignation came 4 months into HITE-CT operations, as the attorney with background and expertise in the field of privacy, health data security or patient rights stepped down due to a conflict of interest. The second resignation came in August of 2012 when the representative from a medical research organization stepped down. The following month, both the large employer or representative of a business group and hospitals representative stepped down. In the fall of 2013, another seat was lost with the resignation of consumer advocate Ms. Kelley who did not seek reappointment. In addition to these 5 resignations that left vacant seats, the appointment of a PCP whose practice utilizes an EHR was never filled. The need for new appointments was raised several times in meetings, yet this issue was never addressed.

The need for new appointments was raised several times in meetings, yet this issue was never addressed, leaving 6-seats vacant on the board.

As membership continued to decline, it became challenging to meet quorum. In the case if HITE-CT, is was permissible for phone attendance to constitute quorum, though one can argue that this is problematic for adequate representation, as phone attendees, in general has minimal participation in board meetings. There were several times, especially in later meetings where phone attendance was needed to meet quorum. The problem with phone attendance meeting quorum needs is illustrated in the quote below:

> "*I'm still on the line… I'm only staying because of your need for a quorum, but I can't hear anything either.*" (Ms. Mattie, Public health representative, 06/18/12 Board of Directors Meeting)

HITE-CT Staff resignations - In addition to the withdrawal of support from board members, the resignations of Chief Executive Officer, Mr. Gilbertson in August of 2012 & Chief Technical Officer, Mr. DeStefano in November of 2013 placed significant challenges on leadership and operations of HITE-CT. After Mr. Gilbertson's resignation, Mr. DeStefano was given signing authority, and there was no discussion about the need to refill the CEO position, or the CTO position after Mr. DeStefano resigned.

Financial

Failed Business Model

From the onset, HITE-CT was faced with the challenge of building a robust business model to support its operations, as federal funding for the initiative was time limited and state funding to support HIE development and operations was absent. The December 2010 business model that the board adopted required significant sales revenue, a state-mandated use, and a state provision for in-kind match to sustain the HIE. Once fully operational, the finance committee, anticipated the HIE would function as an enabler that would generate revenue to sustain HITE-CT operations. Not even one willing paying customer signed on.

Early on, Lieutenant Governor Wyman raised a concern with the business model's reliance on consumer participation. She expressed that constituents would be unlikely to pay for the service and that HITE-CT would need to prepare legislative action for state financial support. She advises the board to:

> *Settle on the services that we need, get that RFP… it'll give us a perspective on how much it's going to cost to run it and then we're going to take action. We've got to get the Legislature to take action, at least the recommendation out of the Finance Committee is they need to take action because I think going and asking the constituents to contribute, you're not going to get very far.* (04/18/11 Board of Directors Meeting)

Several times, the board discussed lobbying resources from the state, but they were not ready with financial proposal for legislative session, and seemed to lack education on the legislative process. *Now the legislature is meeting and we need to figure out how to get something on their agenda around financing.* (Dr. Agresta, Medical Research Organization, 04/18/11 Board of Directors Meeting)

Dr. Thornquist, one of the practicing providers on the board also raised a concern about provider buy-in into the model. He argues that HITE-CT cannot expect small practices with limited resources to see value and buy into the exchange, and advocates for financial incentives to assist with getting small practice providers on board.

> *It's a big hurtle. It's kind of thermodynamics, you've got to get us over the reaction threshold to get us in there. Once we're there we'll be fine, but something's got to get us over that hump, and it can't just be a stick it has to be some carrots.* (02/15/11 Board of Directors Meeting)

During the HIE planning and vendor selection phase, consumer advocate Ms. Kelley raised concerns over what would remain of the budget in order to fulfill remaining ONC requirements.

*We should at least look at the money we have coming from ONC and say, what do we absolutely need to satisfy to do some of the functions that are not going to be the vendor that we're going to select? … I think that we're going into this (*vendor selection*) without enough information. … it's been worrying me because I know that the amount of money isn't that great and I can't believe that we're just going to hire a vendor and the vendor is going to do everything and there's not going to be any need for anything else. So that's my anxiety level right now being a member of this Board. (*04/18/11 Board of Directors Meeting)

The cost of the full service HIE from Axway, was a significant challenge for HITE-CT. As most of the agency's budget went towards the technology, the budget for other needed resources was limited, which created noteworthy concerns. After the vendor was hired, skilled staff were needed to manage the daily operations and move production forward. When CEO, Mr. Gilbertson presented his initial operating budget in February 2012, many board members were concerned with the needed staffing; specifically that there was no funds remaining to keep staff employed past a few short months unless customers start buying into the HIE.

MR. GILBERTSON: Part of it is sort of a chicken and egg thing. If we don't make that transition we'll -- it's costing us -- it will cost us more until we bring staff on that can do some of this work…. And I sort of have that same reservation on going out and hiring somebody unless I'm pretty rock solid that that person's going to have a job for a period of time.
MS. KELLEY: …The financial report that you gave, there may be things that I'm missing, but if I understood what you said, a burn rate of $80,000 a month to run the operation and $100,000 at least in the beginning for Axway that could go down over time, and that we owe Axway another $750,000 in March that's not in that $100,000. So I did my little rough calculations and if the only money we have coming in, in the near future is the $876,000 drawdown on the grant, we're out of money -- we're running short at the end of April.
MR. GILBERTSON: That's correct….
MS. KELLEY: So my comfort level is going to get better if you tell me what happens in May. Is there more money, what's happening? Do we have people signed up, you know, we put out an early adopter request. Do we have early adopters ready to come on? … I'm getting very nervous and maybe I'm just missing something…
*MR. GILBERTSON: … You're right. So I mean, the question is do we really want to do that? And it depends on how comfortable we are that we're going to make this thing go. We certainly don't want to hire somebody and then leave a job and then not have a job. So I got it, I agree with you. I can relate to that. (*02/27/12 Board of Directors Meeting)

Similarly, board members were concerned with identified need for continued technical consulting even after hiring a CTO. Chairperson Mullen summarizes the board's apprehension and asks Mr. Gilbertson to prepare a detailed budget with assumptions for better clarity.

CHAIRPERSON Mullen: We're talking about a budget and… you keep telling us we're going to run out of money. Given the concerns about sustainability, I think what people are wondering is what we project… I see people doing some arithmetic in their [heads] I can see you doing arithmetic, so I think people are looking for something as concrete as you can

give us as we go forward to understand what expenses we can anticipate in this regard. And, for us to understand what they're for…
DR. THORNQUIST: I would agree. Can you give us a range even of like stay on for three to six months depending on the candidate you hire? I mean, because at some point you're going to have to rely on in-house staff and contract out only for things as needed.
(02/27/12 Board of Directors Meeting)

By the same token, the remaining budget put constraints on the production of consumer education materials, which resulted in the need to push more responsibility on the consumer/provider end of the business model.

If we cannot develop, because of our budget, comprehensive materials that we hand people, then we could develop PDFs that people have to use, but then that's going to require… more cost on their (provider) side. (Ms. Kelley, Consumer advocate, 08/15/11 Board of Directors Meeting)

Technological

Another considerable challenge the agency faced was that the vendor solution developed didn't meet needs of the intended major customer base. Additionally, the vendor was unwilling to negotiate a reduced scope of services and had no capacity to implement Direct messaging protocol, which was increasingly being adopted by most states as a first step towards ensuring exchange. Though hospitals and physicians agreed on the concept of a statewide HIE, the technology needed to be developed precisely for intended client needs and budget. CTO, Mr. DeStefano explains the failed business model below:

It didn't work and it didn't work for a number of reasons….And the customers, although they did say they think it's a good idea, I don't think you would go to anybody in the state, a hospital provider, anybody who would say that this is not a good idea. But the return on investment was the issue and the model that came forward from HITE/CT was not a model that they were comfortable with…. Although you can plug into what we had put up in the cloud pretty easily, because it is all based on standards, the market in general wasn't really ready. There aren't that many hospitals in the state who are ready to do this, frankly there are very few. And from the provider office perspective and the large providers, again, there are very few who are really ready to do this... In Connecticut, we have a ways to go in our marketplace before we're really ready to move forward with this. (08/07/13 Board of Directors Meeting)

The other major challenge that HITE-CT faced was that the RFP brought in stand-alone vendors for the HIE. With all the funding going to one vendor, the agency was thrown into a detrimental standstill when the relationship went sour.

Legal

Contract Issues

HITE-CT had major setbacks due to contract issues with their vendor, Axway. Contract disputes between Axway and HITE-CT resulted in the cessation of all work on the two pilot projects that were nearing production ready status in October of 2012. In January of 2013 Axway filed a lawsuit against HITE-CT for breach of contract and no progress was made for over a year until a new contract for a provider directory, EMPI products and EPI

servers was reached in December 2013, at which point all charges against HITE-CT were dismissed.

HITE-CT was also hindered by difficulty in getting contract amendments with DPH whenever changes were made to approved plans. Due to prolonged government timelines, delays in program implementation are a common challenge of partnerships with state public agencies. This happened most recently with the deferral of the voucher program.

> *"That's been our problem; we haven't been able to get this Operational Committee to operate"*

> *Given the timeframe of the grant period and out lack of contract amendment with the Department of Health… I am making a recommendation that we suspend or remove from our authority or the Board's authority to proceed with a voucher program at this time.* (Chairman Raymond, 11/05/13 Board of Directors Meeting)

Governance

Leadership

One interviewed public representative expressed frustration with lack of leadership and guidance from ONC. Specifically, she felt there should have been contract templates provided which could be adapted by states for contracts, budgets and other documentation to reduce burden on states and possibility of inexperienced contracting.

Some board members expressed frustration with the lack of leadership, involvement, and collaboration of state agencies on the board, particularly agencies other than DPH. This was a challenge in that strong executive leadership was necessary in all stages of HIE development and planning. One state agency representative commented that it is easier for some board members, such as care providers and DPH with vested interest in a successful HIE, to see its value in comparison to other state departments for whom the value of HIE may not be directly apparent.

While some members appreciated the leadership role that DPH initially took, one board member, raised issue from a business perspective that DPH wasn't the right fit to lead HITE-CT as they are burdened by state requirements. One area where leadership was noticeably lacking was in the formation of a Business and Operations subcommittee. Though a solid business plan was critical for the success of HITE-CT, the committee was never assembled. HITE-CT CEO, Mr. Gilbertson emphasizes the importance of assembling this committee at his second board meeting:

> *This Committee will be the nuts and bolts of how this thing is actually going to work beyond the technology. So, you've got the technology and then what do you do with the technology and how do you manage it? And that's the Business and Operations Committee, otherwise we'll have a really nice technology but nobody will know what to do with it.* (12/19/11 Board of Directors Meeting)

The need to assemble this committee was raised several times, though a group was never successfully brought together, as consumer advocate, Ms. Kelly comments: *"That's been our*

problem; we haven't been able to get this Operational Committee to operate." (04/16/12 Board of Directors Meeting) As a result, Mr. Carr, private sector HIE representative, took on the responsibilities of business and operations without the needed group expertise.

Other committees/working groups that could have used stronger leadership were the Personnel Search committee and Sustainability Work Group. The limited meetings of the Personnel Search Committee may explain why it took 11 months to hire the CEO, as Mr. Lynch, representative of a large employer/business group explains to the board:

> *The (Personnel) Search Committee at the moment is in limbo. Like you said, we have requirements for the CEO search, but that's as far as it went. We had a committee started that never really met, it was going to be the previous commissioner, Angela, myself and someone else I believe, but we haven't really met on that and I think the recommendation is we need to be working in parallel on a number of things.* (04/18/11 Board of Directors Meeting)

The extended process for hiring the CEO was partially due to extensive debates over the job description, job qualifications, and benefits package. This extended hiring process resulted in the bulk of the agency's initial work with the vendor in the hands of Executive Committee and Interim CEO that was hired in July of 2011.

In October of 2013, the need for a new sustainability model for HITE-CT was addressed by the creation of the Sustainability Work Group. Though, a new plan was imperative for HITE-CT operations to continue, the group only assembled once, and though priorities were identified, no specific recommendations were made to the board from this group.

Decision Making

Getting large groups to come to a consensus is always a challenge, particularly when trying to meet the needs of multiple constituent groups. The extent of this challenge is exemplified by the fact that it took over one year for the board to adopt their operating procedures (February 22, 2012), and nearly one year for the adoption of the Audit Policy, Identity Management, Authentication, Access Control, Consumer Authorization And Consent, Consumer Rights, Breach Notification, Purpose of Use, Affinity Domain, and Information Security Policies (November 21, 2011).

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Though HITE-CT had a democratic process in place for decision making on the board, some members complained that there wasn't always transparency. This can happen when board members miss meetings and also when subcommittees are given authority to make decisions that do not make it back to the full board. This is more likely to happen with decisions that seem to have less consequence, though the significance of each decision may have different meaning for each board member. One

public representative, felt that decision making on the board was an insular process and that not only minor, but important decisions were being made behind closed doors. This perspective is expressed during a discussion concerning the hiring of the CTO without a benefits package in place:

> *I didn't know we'd (decided) that. That's kind of my issue is that a lot of things get done here, and maybe it happens in the Executive Committee, but that's a really important question to me. I'm an advocate for people who don't have health insurance. I would have been paying attention to that and I feel that that decision was taken away from me because we've already done it. I'm concerned that if we go forward now that that will just be the way it's done and then it will be, you know, 'you're just trying to slow things down'.* (Consumer advocate, Ms. Andrews, 04/16/12 Board of Director Meeting)

Public representatives were concerned with the extent conflicts of interest on the board, which led to feeling of mistrust, and fear that members would be influenced by personal interest more than constituent needs. One public stakeholder was also skeptical as the CEO selected was as personal friend of a board member.

In addition to the challenges of achieving consensus and transparency, one interviewed stakeholder referenced the challenge of board member representatives attending meetings without the authority to make decisions, which inhibited the expected participation of the represented agencies. Throughout the 3 year timeframe of this evaluation, the Lieutenant Governor's representative made only 5 motions, Commissioner Mullen's representative made 4, and Commissioner Bremby's representatives didn't initiate any motions, though all were in regular attendance.

Interpersonal

Positive and trusting relationships between involved stakeholders and agencies lay the foundation for a successful collaboration. With large boards, like HITE-CT, that require the expertise of different professional fields representing different constituent interests, there is bound to be disagreement on both high and low stake issues. Though it can be challenging to reach consensus, there must be member buy-in to the group and the group process.

Member buy-in is challenged when communication isn't clear and power feels imbalanced. While some board members praised the effort and work of the more active board members, others reported an unwarranted imbalance of power due to membership in too many subcommittees resulting in excessive influence on decision-making. Not only did board members report undue influence of others on HITE-CT decision making, others felt that their voice wasn't heard, which led to feelings of disrespect, and general contempt for the activity of the board.

As mentioned previously, public representatives were concerned with the extent conflicts of interest on the board, which led to feeling of mistrust, and fear that members would be

influenced by personal interest more than constituent needs. One public stakeholder was also skeptical as the CEO selected was as personal friend of a board member.

Consumer/Public Education

Consent Model

The HITE-CT consent model was a highly contested issue. The initial consent model recommended by the HITEAC was based on "*presumptive inclusion of all personal health information (PHI) in the HIE with an individual having the right to prohibit disclosure of his/her PHI by the HIE to others… The HITEAC deliberately refrained from using the terms 'opt-in' and 'opt-out' "in order to avoid confusion and to focus on the functions of the HIE as it relates to patient consent*."[1] Though the consent model was consistent with current federal and state confidentiality laws and regulations, the decision to not identify it specifically as an opt-out policy, lead to confusion and perceptions of deceit. A public comment from Dr. Israel highlights the lack of clarity and concern over HITE-CT's consent model.

> *MS. ISRAEL: I guess I'd like to clarify the opt-out policy. As I understand it it's opting out of having your records shown to other providers it's not actually opting out.*
> *MS. HOOPER: There are different interpretations on opt-in/opt-out and then the variations in those definitions. There's not one clean in or out.*
> *ACTING CHAIRPERSON AGRESTA: But we do have a policy though. I think what you're asking is what the specifics of our policy are…. that is out there and available online and it describes it….*
> *MS. HOOPER: It is in the Strategic and Operational Plan.*
> *MS. ISRAEL: Oh, I've read all of that and it's not clear…. I've looked. And maybe I don't know where online, but when I've looked under the meetings and they have the minutes, it's very sketchy. And I can't even get the answer to my question about what exactly your policy is about opt-in or opt-out, and yet you're writing brochures to give to people and you're not even clear on what the actual policy is.* (12/19/11 Board of Director's Meeting)

One private stakeholder reported that the problem concerning consent was due to a lack of trust and leadership from the public sector, legislative and executive, to defend the opt-out policy. This stakeholder also states the significant need for consumer education; that consent can't be successful until there is trust, and with neither the business community nor consumers having heard about HITE-CT, trust will remain an issue.

Failed messaging

Nearly all stakeholders stressed the importance of public support for the success of the CT HIE, as HITE-CT's business and sustainability models were dependent on consumer buy-in. As such, widespread education was needed for clinicians, systems, payers, and government entities. Board meeting transcripts and interviewed stakeholders mentioned repeatedly the need for value propositions and effective messaging to engage and educate public constituents and providers to achieve buy-in to HITE-CT's HIE. In January of 2013, CTO, Mr. DeStefano presents a revised Strategic Plan for the organization. In this presentation, he refers to the unsuccessful business strategy as being partially due to failed messaging, as consumers were unable to see a return on their investment.

> *Part of the issue, premise of HITE/CT is, you know, its name. It says Health Information Technology Exchange of Connecticut. And I really firmly believe that this problem is less about*

technology. I think it's in some ways, the name. It doesn't really reflect what we should be doing. This is a business problem. Unless we can go out to our business customers and give them what helps them, some return on investment for what we have, some improvements to their work flow, some future that they can see in all of this; that's what we have to give them. This is commodity technology now… After about 2005, Health Exchanges existed all over the place and they were dissolved all over the place too. It was never about the technology and it still isn't. The technology can be purchased. It doesn't have to be from HITE/CT it can be from any vendor… And our message -- not to be critical, but the message I got when I first met with HITE/CT, I think it was at a CIO meeting [with] CHA was, 'here's the bill, here's how much it's going to cost, here's what your part of this is'. And again, that doesn't talk to what we need to be about, and that's helping our business partners, our stakeholders, solve their health care issues, helping them connect to other providers, helping get and stimulate Health Information of Connecticut. (01/07/13 Board of Directors Meeting)

Some board members were hesitant to build awareness about HITE-CT and its services among their constituents as they felt it would highlight the lack of HITE-CT's progress in creating and operating an exchange.

> *We have a lot of people that I could maybe activate, but it would be to criticize why we're sitting around the table with staff and everything and we can't make a decision between the hospitals and the doctors and the insurance companies, the State, as to how we're going to make this viable.* (Ms. Kelley, Consumer advocate, 02/27/12 Board of Directors Meeting)

These findings were substantiated by others surveys conducted as part of this evaluation with 83% Connecticut residents , 70% of the pharmacies 70%, and 60% of the physicians reporting that they were unaware of HITE-CT.[19-22]

Sustainability

Early on in HITE-CT operations, board members expressed fears that HITE-CT would not succeed. One private stakeholder stated concerns about the viability of HITE-CT's business plan and predicted that organizations may not be willing to adopt a timeline. "*Timing may mean everything; we may not have staying power*". This stakeholder also expressed concerns that HITE-CT didn't have a plan as to how to engage high level stakeholders that could sustain the agency.

Prior to any contract issues or failed initiatives, the perceived sustainability of the CT-HIE over the next ten years was moderate at best. See Table 11 below.

Table 11. Stakeholder Perception of CT-HIE Sustainability

	Sample (N=12*)	
Sustainability of the HIE ***(1 least likely – 5 most likely)***	**N**	**Mean**
Over the next 10 years	10	2.95
Over the next 20 years	8	3.00

*1 stakeholder had not attended any CT-HITE board meetings and didn't feel qualified to answer.

In January of 2013, Chief Technology Officer, Mr. DeStefano suggests taking an Orchestrator approach for sustainability in which HITE-CT would create a system that would link up different local exchanges both within CT and surrounding states (Rhode Island, Massachusetts, New York), in which the exchanges become the new client.

> *That thin layer that connects local Exchanges together, that's what the orchestrator does. And I think from our perspective going forward… that is potentially where we could get some sustainability. You know, certainly that would be a service that the Exchanges, as they start to come up, would want to pay for.* (01/07/13 Board of Directors Meeting)

As the HIE did not meet the needs of its customers, board member consensus was that support from the state was the only viable option to maintain HITE-CT operations for the near future.

Like many other viable ideas and suggestions, those of adopting Direct messaging, signing the interoperability work group (IWG), or exploring the viability of Blue Button initiative, this suggestion from the CTO did not receive any change in boards direction.

Sustainability concerns continued to be raised throughout the timeframe of this evaluation. At the October 2013 board meeting, when CTO Mr. DeStefano announced his likely resignation, the issue of HITE-CT's longevity was at the fore. Chairman Raymond recommended the formation of a Sustainability Work Group to address long term goals and staffing. In response, Mr. Carmody, representative of an Insurer/Health plan suggested that the Executive committee take on the sustainability issue, but the committee had few members remaining. Commissioner Bremby ended up joining the Executive Committee members and the work group did meet once, but no specific recommendations for the board came out of the meeting.

Future of HITE-CT

As the HIE did not meet the needs of its customers, board member consensus was that support from the state was the only viable option to maintain HITE-CT operations for the near future. More recent meetings of HITE-CT have focused on finding ways that the state can utilize the assets HITE-CT has purchased. Mr. Carmody, Insurer/Health Plan Representative sums up the shift from HITE-CT's business model being directed at the marketplace to now finding sustainability within state department programming.

> *I mean when we started this effort off, we had a handful of core assets that we were going to be able make available to the marketplace. Long story short…we don't really have any customer base or client base that is calling for those assets to be enabled. So that was going to create the sustainability, so then the question that I would have is, how does the state look at the assets that we have or we will retain after we resolve some of our outstanding issues with some of our vendors, and how does that fit in to that overarching architecture? At this point if we don't have a major grouping to handle that which was basically for all intents and purposes the hospital system, if the hospital systems don't see us as wanting to come and shop at our doorstep, where are we looking to take these assets and enable them within state architecture?*

And if not, then I guess we have to look at ourselves and say…"We don't have a sustainability model. We don't have a client base, and we're not getting contributions from the state that fund what we needed of these assets and incorporated into a state architecture." Unfortunately, I think it's time to talk about you unwind where we're at. (10/01/13 Board of Directors Meeting).

Discussion

Connecticut was one of the few states that signed the cooperative agreement to create and operate an HIE with just the ONC funds and state in-kind support. Even though the 2010 Strategic and Operational plan estimated that HITE-CT would need approximately $7 million/year in either state or private funding for the development and installation of a fully operational HIE[1], HITE-CT's total operating budget was $4.3 million. These estimates are very high and a more realistic number would have been a million/year given the operating costs of HIEs in our neighboring states.

Knowing its financial limitation, HITE-CT ambitiously chose to develop its own infrastructure relying on a business model that was built largely on future sales revenue that never materialized. Critically, HITE-CT was unable to develop a value proposition that was acceptable to its customer base.

> *To date we have a number of pilots signed up but we have no sales revenue coming in. And that is the focus right now that Dave* (CEO Gilbertson) *is working on with Axway... The development of the marketing plan, the sales plan and getting that sales activity going because fundamentally that's what sustains this organization in the future. It's not sustained by continued grant money and continued searching for funds. It's sustained by revenues and that is the fundamental gap. So we had planned on making sales that would easily have covered the dollars that were coming due. Those sales haven't taken place for a full variety of reasons and that's why the focus now is on jumping on that.* (Mr. Courtway, Hospital representative, 04/16/12 Board of Directors Meeting)

HITE-CT never made it past planning for implementation. The board of directors was better at identifying problems than coming up with solutions, as exemplified when Chairperson Mullen interrupts a lengthy conversation in order to get the group to focus on getting a needed action list accomplished for 'go live' rather than adding more concerns to the list.

> *Excuse me for one second, I'm sorry. The Chair requests a gavel for the next meeting. But in all seriousness though, we have been on this discussion for an hour and it's a good discussion. I appreciate your comments, they're very salient. And I think one of the things that I would take from them, because you had some asks in there, is that your comments do not change the asks of David* (Gilbertson) *for this next couple of days, that we get the tasks at hand to deal with the punch list items that are going to come to the Executive Committee. And I believe that until we deal with that we can have this same conversation every month because every month we get to this point where we talk about what needs to happen.* (04/16/12 Board of Directors Meeting)

HITE-CT was unable to successfully garner support from internal and external partners. The vendor solution developed didn't meet needs of the intended major customer base. Additionally, the vendor was unwilling to negotiate a reduced scope of services and had no capacity to implement Direct Messaging protocol. Though hospitals and physicians agreed on the concept of a statewide HIE, the technology needed to be developed precisely for intended client needs and budget. CTO, Mr. DeStefano explains the failed business model below:

It didn't work and it didn't work for a number of reasons….And the customers, although they did say they think it's a good idea, I don't think you would go to anybody in the state, a hospital provider, anybody who would say that this is not a good idea. But the return on investment was the issue and the model that came forward from HITE/CT was not a model that they were comfortable with…. Although you can plug into what we had put up in the cloud pretty easily, because it is all based on standards, the market in general wasn't really ready. There aren't that many hospitals in the state who are ready to do this, frankly there are very few. And from the provider office perspective and the large providers, again, there are very few who are really ready to do this... In Connecticut, we have a ways to go in our marketplace before we're really ready to move forward with this. (08/07/13 Board Meeting)

Towards the end, HITE-CT contracted with a successful existing neighboring Direct exchange, Rhode Island Quality Institute (RIQI), but RIQI withdrew support from the collaboration when HITE-CT decided to undo its voucher program.

A Few Missed Opportunities

There were a few early missteps. Early on it seems ONC hosted a Direct Bootcamp that was attended by representatives from 39 state HIE, but no one from Connecticut attended. This was brought to the attention of the board by Doug Arnold using the public comment time. This is what he said to the board,

> *ONC, held a boot camp last week in Chicago for 39 of the state health information exchange leaders. Unfortunately, nobody from HIT Connecticut was represented… The direct boot camp was an opportunity for state HIE leaders to learn about the direct project... There were a number of presentations… I wanted to let you know that I was very impressed by how many states are actively building directed exchange into their state HIE plans. Some of our neighbors, including the Rhode Island Quality Institute and Med Allies in the Hudson Valley are way beyond where Connecticut is on health information exchange… I urge HITE Connecticut to talk with and learn from our neighbors in Rhode Island and the Hudson River Valley who are doing this and have spent a lot of time on this already.* (Public Comment from Doug Arnold, CEO at MPS, Inc., 04/18/11 Board of Directors Meeting)

Another initiative of ONC, the Blue Button was picking up steam nationally and was brought to the attention of the board by Ms. Kelley at the October 2011 board meeting.

> *"…once you get patient's information into an electronic format then it really starts to be utilized by multiple professionals then I think people have a right to see that integrated record. And I think the federal government is moving in that direction and that's why the Veteran's Administration for example has piloted this* ***blue button*** *concept because there's terms in here that also say health care consumers should have a direct secure access to electronic health information that does not require a physician or institutional mediation. What that means is, is that you just go get it yourself. And that's the blue button concept and it is being piloted and I guess it's being looked at for Medicaid and Medicare. I mean, they're serious about this so we need to start getting serious about it as well.* (10/24/11 Board of Directors Meeting)

Lastly, collaboration with Access HealthCT, Connecticut's Health Insurance Exchange would be a natural and logical partnership, given their need for a provider directory and the EMPI services. Lieutenant Governor Wyman, (HITE-CT board member and chair of Access HealthCT) convened a meeting between HITE-CT, REC, various state agency commissioners to discuss the scope of work and the needs of Access HealthCT. Since there is some overlap, there were opportunities for each quasi-public agency to leverage the capabilities of the other. AccessHealthCT would eventually need an enterprise master patient index and a provider directory, both of which HITE-CT eventually procured. This opportunity still exists.

Conclusion

Everyone talks about the potential benefits of HIE's, like, reducing medication errors, reducing duplicate tests, delivering preventing care, reducing costs, improving patient and population outcomes. We often forget to mention the associated costs of implementation. We most certainly do not discuss the possible cost to individuals and entities. Even though all HIT adoption is portrayed as a win-win for all, in reality some win and some lose. Savings can only be realized if the total cost of health care goes down and for that to happen someone will make less money.

In hindsight it is clear that technology initiatives present both technical and cultural challenges, and they fail if roles, functions, and agendas are not clearly defined and operationalized. In the case of HITE-CT, some early, but in retrospect, unfortunate decisions were made. These key decisions of hiring contracted personnel who made instrumental business decisions; delayed hiring of the CEO and CTO, and a vendor unwilling to negotiate in a timely manner, resulted in stagnating HITE-CT's progress.

On the other hand, the constantly evolving nature of ONC guidance forced the early decision of HITE-CT to be a query-based exchange which HITE-CT was unable to negotiate out off given ONCs later push for implementing Direct Messaging. Additionally, ONC was clear that they were interested in sustaining the function of HIE and not necessarily sustainment of any state or private organizational structure of HIE. Many states started with similar HIE propositions as Connecticut, and most were able to change their strategic and operational plans as well as infra-structure to fit the evolving ONC guidance and changing landscape of the HIE marketplace. Most states also had better contracts and negotiating powers over their vendor.

At this point in Connecticut, the leaders have some clear choices to make, whether we want to close shop or to re-group and try again. We need to learn from our failure and not repeat mistakes. For example, we need to find partners that will share the profit and the risk that comes with starting initiatives that the market is still experimenting with. We also need to let the people that want to work in this field lead us to success. The HITE-CT board is faced with some key questions such as,

- Is HITE-CT viable as an organization?
- Does it have the right structure to move the agenda of HIE in Connecticut?
- Should tax dollars be used to sustain HITE-CT?

Upon reflection, ONC too embarked on a task that was fraught with challenges. And, their frequent changing guidance did not make the process of HIE implementation easier for states that did not already have existing and mature HIEs or infrastructure. Just like Connecticut, ONC too was guilty of big dreams, when in reality small steps and a phased-approach would have been better for most states given the context of declining state-revenue in which this initiative was started. Additionally, the timing of the effort was not well thought out. For example, most would agree that for an HIE to be successful, a climate where providers are using basic EHRs to capture information is the first step to enabling exchange of health data. But, ONC simultaneously entered into two cooperative agreements with states. One to fund the Regional Extension Centers (RECs), entrusted with the responsibility of increasing EHR adoption among providers and the second for creation of HIEs. These agreements were administered at the same time, resulting in an inordinate amount of stress for eligible professionals and hospitals that had to meet the demanding timelines. Instead these initiatives should have been sequential. Also, in some states these efforts were in competition with each other. Lastly, ONC's decision to allow no-cost extensions for RECs and not the HIE cooperative agreements seem flipped. Given that the national rate of EHR adoption is currently estimated at 78%[23], it is important to incentivize exchange of information.

Our final recommendations:

- Board should be comprised of experienced members free from perceived or actual conflicts of interest and those who are willing to attend meetings in person. No seats on the board should be left vacant for more than a quarter.
- HITE-CT should create a viable and realistic business model and develop use cases that are attractive to its customer base.
- Need to engage the public through education and outreach.

If we stop at adoption of EHRs, we will be no closer to actual exchange of information. Exchange of information is challenging and makes many large and medium-sized practices uncomfortable. Many stakeholders, mostly hospitals, are building up bigger networks because they fear loss of control over their data resulting in loss of market share. Other emergent properties of adaptive systems may emerge that we do not understand in health care delivery systems.

Addressing these challenges insightfully and acknowledging failure is more useful than many think. No one likes to admit failure, but, it represents an opportunity to re-start without the baggage of the old system. In this case, starting afresh is likely to be in the best interest of the state. Before we embark on another HIE initiative we all have the responsibility to truthfully answer the following questions: Do we really truly want a successful HIE operation? If the answer is, yes we want an operational HIE, then we need to have an honest dialogue about what it looks like, and what everyone is willing to pay for such an infrastructure. Who should bear the cost? How should cost be shared? Should

small providers be given support? Even though these questions may seem easy, they are difficult to build consensus around.

For Connecticut, the challenges are many-fold: where should the function of HIE reside, who pays for it, who operates it, and how do we achieve all this while keeping the goal of patient-centered care thriving. Even though we admit failure in this current effort, we need to try again, as the true mark of our success is our perseverance to make the lives of the citizen of Connecticut better and to create a seamless and connected system of health care.

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Appendix A: Public Act 10-117

An Act Concerning Revisions to Public Health Related Statutes and the Establishment of the Health Information Technology Exchange of Connecticut," Sec. 82-90, 96 (codified at CSG §19a-750(c))

Substitute Senate Bill No. 428

Public Act No. 10-117

AN ACT CONCERNING REVISIONS TO PUBLIC HEALTH RELATED STATUTES AND THE ESTABLISHMENT OF THE HEALTH INFORMATION TECHNOLOGY EXCHANGE OF CONNECTICUT.

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Sec. 82. (NEW) (*Effective from passage*) (a) There is hereby created as a body politic and corporate, constituting a public instrumentality and political subdivision of the state created for the performance of an essential public and governmental function, the Health Information Technology Exchange of Connecticut, which is empowered to carry out the purposes of the authority, as defined in subsection (b) of this section, which are hereby determined to be public purposes for which public funds may be expended. The Health Information Technology Exchange of Connecticut shall not be construed to be a department, institution or agency of the state.

(b) For purposes of this section, sections 83 to 85, inclusive, of this act and section 19a-25g of the general statutes, as amended by this act, "authority" means the Health Information Technology Exchange of Connecticut and "purposes of the authority" means the purposes of the authority expressed in and pursuant to this section, including the promoting, planning and designing, developing, assisting, acquiring, constructing, maintaining and equipping, reconstructing and improving of health care information technology. The powers enumerated in this section shall be interpreted broadly to effectuate the purposes of the authority and shall not be construed as a limitation of powers. The authority shall have the power to:

(1) Establish an office in the state;

(2) Employ such assistants, agents and other employees as may be necessary or desirable, which employees shall be exempt from the classified service and shall not be employees, as defined in subsection (b) of section 5-270 of the general statutes;

(3) Establish all necessary or appropriate personnel practices and policies, including those relating to hiring, promotion, compensation, retirement and collective bargaining, which need not be in accordance with chapter 68 of the general statutes, and the authority shall not be an employer, as defined in subsection (a) of section 5-270 of the general statutes;

(4) Engage consultants, attorneys and other experts as may be necessary or desirable to carry out the purposes of the authority;

(5) Acquire, lease, purchase, own, manage, hold and dispose of personal property, and lease, convey or deal in or enter into agreements with respect to such property on any terms necessary or incidental to the carrying out of these purposes;

(6) Procure insurance against loss in connection with its property and other assets in such amounts and from such insurers as it deems desirable;

(7) Make and enter into any contract or agreement necessary or incidental to the performance of its duties and execution of its powers. The contracts entered into by the authority shall not be subject to the approval of any other state department, office or agency. However, copies of all contracts of the authority shall be maintained by the authority as public records, subject to the proprietary rights of any party to the contract;

(8) To the extent permitted under its contract with other persons, consent to any termination, modification, forgiveness or other change of any term of any contractual right, payment, royalty, contract or agreement of any kind to which the authority is a party;

(9) Receive and accept, from any source, aid or contributions, including money, property, labor and other things of value;

(10) Invest any funds not needed for immediate use or disbursement in obligations issued or guaranteed by the United States of America or the state and in obligations that are legal investments for savings banks in this state;

(11) Account for and audit funds of the authority and funds of any recipients of funds from the authority;

(12) Sue and be sued, plead and be impleaded, adopt a seal and alter the same at pleasure;

(13) Adopt regular procedures for exercising the power of the authority not in conflict with other provisions of the general statutes; and

(14) Do all acts and things necessary and convenient to carry out the purposes of the authority.

(c) (1) The Health Information Technology Exchange of Connecticut shall be managed by a board of directors. The board shall consist of the following members: The Lieutenant Governor, or his or her designee; the Commissioners of Public Health, Social Services and Consumer Protection, or their designees; the Chief Information Officer of the Department of Information Technology, or his or her designee; three appointed by the Governor, one of whom shall be a representative of a medical research organization, one of whom shall be an insurer or representative of a health plan and one of whom shall be an attorney with background and experience in the field of privacy, health data security or patient rights; three appointed by the president pro tempore of the Senate, one of whom shall have background and experience with a private sector health information exchange or health information technology entity, one of whom shall have expertise in public health and one of whom shall be a physician licensed under chapter 370 of the general statutes who works in a practice of not more than ten physicians and who is not employed by a hospital, health network, health plan, health system, academic institution or university; three appointed by the speaker of the House of Representatives, one of whom shall be a representative of hospitals, an integrated delivery network or a hospital association, one of whom who shall have expertise with federally qualified health centers and one of whom shall be a consumer or consumer advocate; one appointed by the majority leader of the Senate, who shall be a primary care physician whose practice utilizes electronic health records; one appointed by the majority leader of the House of Representatives, who shall be a consumer or consumer advocate; one appointed by the minority leader of the Senate, who shall be a pharmacist or a health care provider utilizing electronic health information exchange; and one appointed by the minority leader of the House of Representatives, who shall be a large employer or a representative of a business group. The Secretary of the Office of Policy and Management and the Healthcare Advocate, or their designees, shall be ex-officio, nonvoting members of the board. The Commissioner of Public Health, or his or her designee, shall serve as the chairperson of the board.

(2) All initial appointments to the board shall be made on or before October 1, 2010. The initial term for the board members appointed by the Governor shall be for four years. The initial term for board members appointed by the speaker of the House of Representatives and the majority leader of the House of Representatives shall be for three years. The initial term for board members appointed by the minority leader of the House of Representatives and the minority leader of the Senate shall be for two years. The initial term for the board members appointed by the president pro tempore of the Senate and the majority leader of the Senate shall be for one year. Terms shall expire on September thirtieth of each year in accordance with the provisions of this subsection. Any vacancy shall be filled by the appointing authority for the balance of the unexpired term. Other than an initial term, a board member shall serve for a term of four years. No board member, including initial board members, may serve for more than two terms. Any member of the board may be removed by the appropriate appointing authority for misfeasance, malfeasance or wilful neglect of duty.

(3) The chairperson shall schedule the first meeting of the board, which shall be held not later than November 1, 2010.

(4) Any member appointed to the board who fails to attend three consecutive meetings or who fails to attend fifty per cent of all meetings held during any calendar year shall be deemed to have resigned from the board.

(5) Notwithstanding any provision of the general statutes, it shall not constitute a conflict of interest for a trustee, director, partner, officer, stockholder, proprietor, counsel or employee of any person, firm or corporation to serve as a board member, provided such trustee, director, partner, officer, stockholder, proprietor, counsel or employee shall abstain from deliberation, action or vote by the board in specific respect to such person, firm or corporation. All members shall be deemed public officials and shall adhere to the code of ethics for public officials set forth in chapter 10 of the general statutes.

(6) Board members shall receive no compensation for their services, but shall receive actual and necessary expenses incurred in the performance of their official duties.

(d) The board shall select and appoint a chief executive officer who shall be responsible for administering the authority's programs and activities in accordance with policies and objectives established by the board. The chief executive officer shall serve at the pleasure of the board and shall receive such compensation as shall be determined by the board. The chief executive officer (1) may employ such other employees as shall be designated by the board of directors; and (2) shall attend all meetings of the board, keep a record of all
proceedings and maintain and be custodian of all books, documents and papers filed with the authority and of the minute book of the authority.
(e) The board shall direct the authority regarding: (1) Implementation and periodic revisions of the health information technology plan submitted in accordance with the provisions of section 74 of public act 09-232, including the implementation of an integrated state-wide electronic health information infrastructure for the sharing of electronic health information among health care facilities, health care professionals, public and private payors, state and federal agencies and patients; (2) appropriate protocols for health information exchange; and (3) electronic data standards to facilitate the development of a state-wide integrated electronic health information system, as defined in subsection (a) of section 19a-25d of the general statutes, for use by health care providers and institutions that receive state funding. Such electronic data standards shall: (A) Include provisions relating to security, privacy, data content, structures and format, vocabulary and transmission protocols; (B) limit the use and dissemination of an individual's Social Security number and require the encryption of any Social Security number provided by an individual; (C) require privacy standards no less stringent than the "Standards for Privacy of Individually Identifiable Health Information" established under the Health Insurance Portability and Accountability Act of 1996, P. L. 104-191, as amended from time to time, and contained in 45 CFR 160, 164; (D) require that individually identifiable health information be secure and that access to such information be traceable by an electronic audit trail; (E) be compatible with any national data standards in order to allow for interstate interoperability, as defined in subsection (a) of section 19a-25d of the general statutes; (F) permit the collection of health information in a standard electronic format, as defined in subsection (a) of section 19a-

25d of the general statutes; and (G) be compatible with the requirements for an electronic health information system, as defined in subsection (a) of section 19a-25d of the general statutes.

(f) Applications for grants from the authority shall be made on a form prescribed by the board. The board shall review applications and decide whether to award a grant. The board may consider, as a condition for awarding a grant, the potential grantee's financial participation and any other factors it deems relevant.

(g) The board may consult with such parties, public or private, as it deems desirable in exercising its duties under this section.

(h) Not later than February 1, 2011, and annually thereafter until February 1, 2016, the chief executive officer of the authority shall report, in accordance with section 11-4a of the general statutes, to the Governor and the General Assembly on (1) any private or federal funds received during the preceding year and, if applicable, how such funds were expended, (2) the amount and recipients of grants awarded, and (3) the current status of health information exchange and health information technology in the state.

Sec. 83. (NEW) (*Effective from passage*) (a) The Health Information Technology Exchange of Connecticut may establish or designate one or more subsidiaries for the purpose of creating, developing, coordinating and operating a state-wide health information exchange, or for such other purposes as prescribed by resolution of the authority's board of directors, which purposes shall be consistent with the purposes of the authority. Each subsidiary shall be deemed a quasi-public agency for purposes of chapter 12 of the general statutes. The authority may transfer to any such subsidiary any moneys and real or personal property. Each such subsidiary shall have all the privileges, immunities, tax exemptions and other exemptions of the authority. A resolution of the authority shall prescribe the purposes for which each subsidiary is formed.

(b) Each such subsidiary may sue and shall be subject to suit, provided the liability of each such subsidiary shall be limited solely to the assets, revenues and resources of such subsidiary and without recourse to the general funds, revenues, resources or any other assets of the authority or any other subsidiary. Each such subsidiary shall have the power to do all acts and things necessary or convenient to carry out the purposes for which such subsidiary is established, including, but not limited to: (1) Solicit, receive and accept aid, grants or contributions from any source of money, property or labor or other things of value, subject to the conditions upon which such grants and contributions may be made, including, but not limited to, gifts, grants or loans from any department, agency or quasi-public agency of the United States or the state, or from any organization recognized as a nonprofit organization under Section 501(c)(3) of the Internal Revenue Code of 1986, or any subsequent corresponding internal revenue code of the United States, as amended from time to time; (2) enter into agreements with persons upon such terms and conditions as are consistent with the purposes of such subsidiary; and (3) acquire, take title, lease, purchase, own, manage, hold and dispose of real and personal property and lease, convey or deal in or enter into agreements with respect to such property.

(c) Each such subsidiary shall act through its board of directors, not less than fifty per cent of whom shall be members of the board of directors of the authority or their designees.

(d) The provisions of section 1-125 of the general statutes, as amended by this act, and this section shall apply to any officer, director, designee or employee appointed as a member, director or officer of any such subsidiary. Neither any such persons so appointed nor the directors, officers or employees of the authority shall be personally liable for the debts, obligations or liabilities of any such subsidiary as provided in said section 1-125. Each subsidiary shall, and the authority may, provide for the indemnification to protect, save harmless and indemnify such officer, director, designee or employee as provided by said section 1-125.

(e) The authority or any such subsidiary may take such actions as are necessary to comply with the provisions of the Internal Revenue Code of 1986, or any subsequent corresponding internal revenue code of the United States, as amended from time to time, to qualify and maintain any such subsidiary as a corporation exempt from taxation under said Internal Revenue Code.

(f) The authority may make loans or grants to, and may guarantee specified obligations of, any such subsidiary, following standard authority procedures, from the authority's assets and the proceeds of its bonds, notes and other obligations, provided the source and security, if any, for the repayment of any such loans or guarantees is derived from the assets, revenues and resources of such subsidiary.

Sec. 84. (NEW) (*Effective from passage*) The state of Connecticut does hereby pledge to and agree with any person with whom the Health Information Technology Exchange of Connecticut may enter into contracts pursuant to the provisions of sections 82 to 85, inclusive, of this act that the state will not limit or alter the rights hereby vested in the authority until such contracts and the obligations thereunder are fully met and performed on the part of the authority, provided nothing contained in this section shall preclude such limitation or alteration if adequate provision shall be made by law for the protection of such persons entering into contracts with the authority.

Sec. 85. (NEW) (*Effective from passage*) The Health Information Technology Exchange of Connecticut shall be and is hereby declared exempt from all franchise, corporate business, property and income taxes levied by the state or any municipality, provided nothing in this section shall be construed to exempt from any such taxes, or from any taxes levied in connection with the manufacture or sale of any products which are the subject of any agreement made by the authority, any person entering into any agreement with the authority.

Sec. 86. Section 19a-25g of the 2010 supplement to the general statutes is repealed and the following is substituted in lieu thereof (*Effective from passage*):

(a) **[**On and after July 1, 2009, the**]** The Department of Public Health shall be the lead health information exchange organization for the state from July 1, 2009, to

December 31, 2010, inclusive. The department shall seek private and federal funds, including funds made available pursuant to the federal American Recovery and Reinvestment Act of 2009, for the initial development of a state- wide health information exchange. **[**Any private or federal funds received by the department may be used for the purpose of establishing health information technology pilot programs and the grant programs described in section 19a-25h.**]**

(b)On and after January 1, 2011, the Health Information Technology Exchange of Connecticut, created pursuant to section 82 of this act, shall be the lead health information organization for the state. The authority shall continue to seek private and federal funds for the development and operation of a state-wide health information exchange. The Department of Public Health may contract with the authority to transfer unexpended federal funds received by the department pursuant to the federal American Recovery and Reinvestment Act of 2009, P.L. 111-05, if any, for the initial development of a state-wide health information exchange. The authority shall, within available resources, provide grants for the advancement of health information technology and exchange in this state, pursuant to subsection (f) of section 82 of this act.

[(b)**]** (c) The department shall **[**: (1) Facilitate**]** facilitate the implementation and periodic revisions of the health information technology plan after the plan is initially submitted in accordance with the provisions of section 74 of public act 09-232, including the implementation of an integrated state-wide electronic health information infrastructure for the sharing of electronic health information among health care facilities, health care professionals, public and private payors, state and federal agencies and patients **[**, and (2) develop standards and protocols for privacy in the sharing of electronic health information. Such standards and protocols shall be no less stringent than the "Standards for Privacy of Individually Identifiable Health Information" established under the Health Insurance Portability and Accountability Act of 1996, P. L. 104-191, as amended from time to time, and contained in 45 CFR 160, 164. Such standards and protocols shall require that individually identifiable health information be secure and that access to such information be traceable by an electronic audit trail**]** until December 31, 2010. On and after January 1, 2011, the Health Information Technology Exchange of Connecticut shall be responsible for the implementation and periodic revisions of the health information technology plan.

Sec. 87. Subsection (l) of section 1-79 of the general statutes is repealed and the following is substituted in lieu thereof (*Effective from passage*):

(l) "Quasi-public agency" means the Connecticut Development Authority, Connecticut Innovations, Incorporated, Connecticut Health and Education

Facilities Authority, Connecticut Higher Education Supplemental Loan Authority, Connecticut Housing Finance Authority, Connecticut Housing Authority, Connecticut Resources Recovery Authority, Lower Fairfield County Convention Center Authority, Capital City Economic Development Authority, **[**and**]** Connecticut Lottery Corporation and Health Information Technology Exchange of Connecticut.

Sec. 88. Subdivision (1) of section 1-120 of the general statutes is repealed and the following is substituted in lieu thereof (*Effective from passage*):

(1) "Quasi-public agency" means the Connecticut Development Authority, Connecticut Innovations, Incorporated, Connecticut Health and Educational Facilities Authority, Connecticut Higher Education Supplemental Loan Authority, Connecticut Housing Finance Authority, Connecticut Housing Authority, Connecticut Resources Recovery Authority, Capital City Economic Development Authority, **[**and**]** Connecticut Lottery Corporation and Health Information Technology Exchange of Connecticut.

Sec. 89. Section 1-124 of the general statutes is repealed and the following is substituted in lieu thereof (*Effective from passage*):

(a) The Connecticut Development Authority, the Connecticut Health and Educational Facilities Authority, the Connecticut Higher Education Supplemental Loan Authority, the Connecticut Housing Finance Authority, the Connecticut Housing Authority, the Connecticut Resources Recovery Authority, the Health Information Technology Exchange of Connecticut and the Capital City Economic Development Authority shall not borrow any money or issue any bonds or notes which are guaranteed by the state of Connecticut or for which there is a capital reserve fund of any kind which is in any way contributed to or guaranteed by the state of Connecticut until and unless such borrowing or issuance is approved by the State Treasurer or the Deputy State Treasurer appointed pursuant to section 3-12. The approval of the State Treasurer or said deputy shall be based on documentation provided by the authority that it has sufficient revenues to (1) pay the principal of and interest on the bonds and notes issued, (2) establish, increase and maintain any reserves deemed by the authority to be advisable to secure the payment of the principal of and interest on such bonds and notes, (3) pay the cost of maintaining, servicing and properly insuring the purpose for which the proceeds of the bonds and notes have been issued, if applicable, and (4) pay such other costs as may be required.

(b) To the extent the Connecticut Development Authority, Connecticut Innovations, Incorporated, Connecticut Higher Education Supplemental Loan Authority, Connecticut Housing Finance Authority, Connecticut Housing

Authority, Connecticut Resources Recovery Authority, Connecticut Health and Educational Facilities Authority, the Health Information Technology Exchange of Connecticut or the Capital City Economic Development Authority is permitted by statute and determines to exercise any power to moderate interest rate fluctuations or enter into any investment or program of investment or contract respecting interest rates, currency, cash flow or other similar agreement, including, but not limited to, interest rate or currency swap agreements, the effect of which is to subject a capital reserve fund which is in any way contributed to or guaranteed by the state of Connecticut, to potential liability, such determination shall not be effective until and unless the State Treasurer or his or her deputy appointed pursuant to section 3-12 has approved such agreement or agreements. The approval of the State Treasurer or his or her deputy shall be based on documentation provided by the authority that it has sufficient revenues to meet the financial obligations associated with the agreement or agreements.

Sec. 90. Section 1-125 of the general statutes is repealed and the following is substituted in lieu thereof (*Effective from passage*):

The directors, officers and employees of the Connecticut Development Authority, Connecticut Innovations, Incorporated, Connecticut Higher Education Supplemental Loan Authority, Connecticut Housing Finance Authority, Connecticut Housing Authority, Connecticut Resources Recovery Authority, including ad hoc members of the Connecticut Resources Recovery Authority, Connecticut Health and Educational Facilities Authority, Capital City Economic Development Authority, the Health Information Technology Exchange of Connecticut and Connecticut Lottery Corporation and any person executing the bonds or notes of the agency shall not be liable personally on such bonds or notes or be subject to any personal liability or accountability by reason of the issuance thereof, nor shall any director or employee of the agency, including ad hoc members of the Connecticut Resources Recovery Authority, be personally liable for damage or injury, not wanton, reckless, wilful or malicious, caused in the performance of his or her duties and within the scope of his or her employment or appointment as such director, officer or employee, including ad hoc members of the Connecticut Resources Recovery Authority. The agency shall protect, save harmless and indemnify its directors, officers or employees, including ad hoc members of the Connecticut Resources Recovery Authority, from financial loss and expense, including legal fees and costs, if any, arising out of any claim, demand, suit or judgment by reason of alleged negligence or alleged deprivation of any person's civil rights or any other act or omission resulting in damage or injury, if the director, officer or employee, including ad hoc members of the Connecticut Resources Recovery Authority, is found to have been acting in the discharge of his or her duties or within the scope of his or her employment and such act or omission is found not to have been wanton, reckless, wilful or malicious.

….

Sec. 96. Section 19a-25h of the general statutes is repealed. (*Effective January 1, 2011*)

Appendix B: HITE-CT Board of Directors

Appointee Name	Appointed By	Represents	Term Expires	Timeframe on Board
Wyman, Nancy Bettye Jo Pakulis† *Michael Fedele*	CGS §19a-750(c)(1)	Lieutenant Governor	n/a	02/11-current
Raymond, Mark Casey, Steve† *Richard Bailey*	CGS §19a-750(c)(1)	CIO of Department of Administrative Service, Bureau of Enterprise Systems & Technology (*formerly Department of Information Technology*)	n/a	10/10-current
Mullen, Jewel MD, MPH, MPA Elizabeth Keyes† Vanessa Kapral† *Galvin, J. Robert MD, MPH, MBA*	CGS §19a-750(c)(1)	Commissioner of Public Health	n/a	10/10-current
Bremby, Roderick Mark Heuschkel†	CGS §19a-750(c)(1)	Commissioner of Social Services	n/a	10/10-current
Gadea, John	CGS §19a-750(c)(1)	Commissioner of Department of Consumer Protection	n/a	10/10-current
Carmody, Daniel	Governor Dannel. P. Malloy	Insurer or Representative of a Health Plan	09/30/14	10/10-current
Carr, Kevin MD	President Pro Tempore Sen. Donald Williams, Jr.	Background and experience with a private sector HIE/HIT entity	09/30/15*	10/10-current
Mattie, Angela JD, MPH	President Pro Tempore Sen. Donald Williams, Jr.	Expertise in public health	09/30/15*	10/10-current
Thornquist, Steven MD	President Pro Tempore Sen. Donald Williams, Jr.	A physician licensed under chapter 370 of the general statues who works in a practice of <10 physicians & who is not employed by a hospital, health network, health plan, health system, academic institution or university	09/30/15*	10/10-current

Appointee Name	Appointed By	Represents	Term Expires	Timeframe on Board
Masselli, Mark	Speaker of the House Rep. Christopher Donovan	Expertise in Federally Qualified Health Centers	09/30/13[1]	10/10-current
Andrews, Ellen PhD	Speaker of the House Rep. Christopher Donovan	Consumer or consumer advocate	09/30/13[1]	10/10-current
Buckman, Ronald MD	Senate Minority Leader Sen. John McKinney	Pharmacist or a health care provider utilizing electronic HIE	09/30/12[1]	10/10-current
Wolf, Barbara Parks †‡	CGS §19a-750(c)(1)	Secretary of Office of Policy and Management	n/a	10/10-current
Veltri, Victoria ‡ Fontanella, Demian† *Mooney, Jamie †‡*	CGS §19a-750(c)(1)	Healthcare Advocate	n/a	04/11-current
Boyle, Lisa, JD	*Governor Dannel. P. Malloy*	*Attorney: background in field of privacy, health data security or patient rights*	*09/30/14*	*10/10-04/11*
Agresta, Thomas MD	*Governor Dannel. P. Malloy*	*Medical Research Organization (UCHC)*	*09/30/14*	*10/10-08/12*
Courtway, Peter	*Speaker of the House Rep. Christopher Donovan*	*Hospitals, an integrated delivery network or a hospital association*	*09/30/13*	*10/10-08/12*
Lynch, John	*House Minority Leader Rep. Larry Cafero*	*Large employer or a representative of a business group*	*09/30/12*	*10/10-09/12*
Kelley, Brenda	*House Majority Leader Rep. Brendan Sharkey*	*Consumer or consumer advocate*	*09/30/13*	*10/10-06/13*
Vacant	*Senate Majority Leader Sen. Martin Looney*	*Primary care physician whose practice utilizes EHRs*	*09/30/11*	*Never filled*

*†Designee ‡ Ex-officio, non-voting member *Second Term [1]can remain on Board until either reappointed or replacement*

Appendix C: Instruments

Advisory Committee Member Survey

Page One
1.) What is your name?
_____

2.) With what agency/organization are you affiliated?
_____

3.) What is your age?
_____

4.) What is your gender?
( ) Male
( ) Female

5.) What is your ethnicity?
( ) Hispanic or Latino
( ) Not Hispanic or Latino

6.) Please select one or more of the following racial categories to describe yourself:
[ ] American Indian or Alaska Native
[ ] Asian
[ ] Black or African American
[ ] Native Hawaiian or other Pacific Islander
[ ] White

7.) What is the highest level of education you have completed?
( ) High school/GED
( ) Some college
( ) 2-year or Associate's Degree
( ) 4-year or Bachelor's Degree
( ) Master's Degree
( ) Professional Degree (MD, JD)
( ) Doctorate

8.) What is your job title?
_____
9.) Approximately how long (in months) have you served as a member of the Advisory Committee?
_____
10.) Have you been absent for any advisory committee meetings?
( ) Yes
( ) No

11.) If yes, how many meetings have you missed?
( ) 1
( ) 2
( ) 3
( ) 4
( ) 5 or more

Role as an Advisory Committee Member

12.) List five words that come to mind when you think of work that has been done by the Advisory Committee:
1: _____
2: _____
3: _____
4: _____
5: _____

13.) Please rate your level of agreement with the following statements, based on your experiences as a member of the advisory committee:

	Agree	**Somewhat Agree**	**Disagree**
The advisory committee accomplished a significant amount	[ ]	[ ]	[ ]
The advisory committee was well constituted	[ ]	[ ]	[ ]
There were hidden agenda(s) present within the committee	[ ]	[ ]	[ ]
The charge of the committee was clear and well-understood	[ ]	[ ]	[ ]
There was not enough time to get things done	[ ]	[ ]	[ ]
My input was incorporated into the final strategic and operational plan submitted to the Office of the National Coordinated (ONC)	[ ]	[ ]	[ ]
Gartner did a good job of listening to comments and putting the Strategic and Operational plan together	[ ]	[ ]	[ ]

14.) Please describe what good things (if any) happened as a result of committee efforts:
Example:: _____
Example:: _____
Example:: _____
Example:: _____

15.) Overall how satisfied were you with the work accomplished by the Advisory committee?
( ) Very Satisfied
( ) Satisfied
( ) Neither Satisfied nor Dissatisfied
( ) Dissatisfied
( ) Very Dissatisfied

Role as a Subcommittee Member

16.) Were you a member of any subcommittee?
( ) Yes
( ) No

17.) If yes, please indicate which subcommittee(s) you were a member of (check all that apply). To select multiple options, hold down the CTRL key:
( ) Business and Technical
( ) Financial
( ) Governance
( ) Legal and Policy
( ) Special Populations
( ) Technical

18.) Please describe your role as a member of a subcommittee:
[ ] I was the chair of a subcommittee
[ ] I was a member of more than one subcommittee
[ ] I was a member of only one subcommittee

19.) If you were a member of more than one subcommittee, please identify which subcommittee you felt you contributed to the most:
( ) Business and Technical
( ) Financial
( ) Governance
( ) Legal and Policy
( ) Special Populations
( ) Technical

20.) Please rate your level of agreement with the following statements, based on your experiences as a member of a subcommittee:

	Agree	**Somewhat Agree**	**Disagree**
The sub-committee accomplished a significant amount	[ ]	[ ]	[ ]
The sub-committee was well constituted	[ ]	[ ]	[ ]
Most members of the sub-committee worked hard	[ ]	[ ]	[ ]
There were hidden agendas within the subcommittee	[ ]	[ ]	[ ]
The charge of the sub-committee was clear and well-understood	[ ]	[ ]	[ ]

	Agree	Somewhat Agree	Disagree
There was not enough time to get things done	[ ]	[ ]	[ ]
My input was incorporated into the final strategic and operational plan submitted to the Office of the National Coordinated (ONC)	[ ]	[ ]	[ ]
Gartner did a good job of listening to comments and putting the Strategic and Operational plan together	[ ]	[ ]	[ ]

21.) Please describe what good things (if any) happened as a result of committee efforts:
Example:: _____
Example:: _____
Example:: _____
Example:: _____

22.) Overall how satisfied were you with the work accomplished by your subcommittee?
( ) Very Satisfied
( ) Satisfied
( ) Neither Satisfied nor Dissatisfied
( ) Dissatisfied
( ) Very Dissatisfied

Starting in October 2010, the advisory committee is going to be replaced by a board being appointed by the Governor, which will be responsible for the operations of "The Authority", the quasi-public-private partnership agency responsible for the HIT efforts in Connecticut. We would like to ask you a few questions about your perspective about the formation of the board.

23.) What thoughts would you like to share with the board so that they may be efficient and productive?
Comment 1: _____
Comment 2: _____
Comment 3: _____
Comment 4: _____
24.) In your opinion, what are the challenges that the board faces?
_____
_____
25.) Do you think that the formation of the Authority is the correct way to implement HIT in Connecticut?
( ) Yes
( ) No
26.) If No, what would you like to see happen?
_____
_____
27.) Please share any other ideas or thoughts that you think are pertinent to the CT-HIE:
_____
_____
Thank You!
Thank you for taking our survey. Your response is very important to us.

Stakeholder Interview Guide: HITE-CT Board of Directors

STAKEHOLDER INTERVIEW GUIDE
Health Information Technology Exchange of Connecticut: UCHC Evaluation

I. General Information: *To be completed prior to beginning the interview.*

1. Name of individual being interviewed: _____
2. Title of individual being interviewed: _____
3. Agency with which individual is affiliated:
   - ☐ Connecticut Department of Public Health
   - ☐ Connecticut Department of Social Services
   - ☐ eHealth Connecticut
   - ☐ Other (please specify: _____)
4. Date of interview: _____
5. Interview conducted:
   - ☐ In person
   - ☐ By phone
6. Interviewer: _____
7. Indicate whether this is an initial _____ or follow-up_____ interview.

   If this is a follow-up interview, please specify the interview number (if known): _____
8. Interview start time: _____ Interview end time: _____

II. Purpose of Interview: ***To be described to participant if necessary.***

"The purpose of this interview is to assess the current functionality of the health information exchange initiative in the state of Connecticut. This interview represents an important part of the current HIE evaluation and attempts to extract information about both the successes and challenges associated with the initiative. Though the interview will aim to assess certain components of the initiative, all questions are open-ended and were designed to elicit as much feedback from participants as possible. The information you provide during this interview will be critical in answering important questions about the state of the current HIE initiative. However, at no point will the identity associated with any specific comments or opinions be disseminated in any form, written or otherwise."

III. Interview Items: ***To be used as a structured guide for the interview.***

Item 1. Roles and responsibilities.
Key Question: Can you provide information regarding your role, both within your agency and within the committee, as it pertains to the current HIE initiative?
Possible subjects to explore further: ▪ What is the duration of time you have been part of the HIE initiative in Connecticut? ▪ What are your specific responsibilities for promoting and facilitating the HIE initiative as a leader in your agency? ▪ What are your specific responsibilities as a member of the Health Information Technology and Exchange Advisory Committee and/or the Board of Directors of HITE-CT? ▪ What proportion of your time would you estimate is spent on HIE and/or HIE-related activities? ▪ What has been the biggest accomplishment for you or your agency with regards to the HIE initiative?
Comments:

Item 2. Attitudes toward the initiative.

Key Question: Can you elaborate on your opinion of the initiative?

Possible subjects to explore further:

- What were your initial feelings about the initiative?
- What are they at this moment in time?
- If your feelings have changed, to what elements of the initiative do you attribute this change in opinion?
- Ultimately, where do you see health information exchange capabilities in Connecticut in 2011? 2015?

Comments:

Item 3. Challenges and barriers associated with the initiative.

Key Question: Achieving health information exchange capabilities across the state of Connecticut represents a significant challenge. What have been the largest barriers encountered for you and/or your agency in attempting to meet this goal? Do you feel these challenges are surmountable or do you feel they will ultimately prevent attainment of the major HIE goals?

Possible subjects to explore further:

- This is meant to represent a relatively open-ended question, but possible challenges to elaborate upon include:
  - Financial (i.e. limited budget, resources)
  - Governmental (i.e. poor leadership)
  - Technological (i.e. infrastructure, vendor solution)
  - Legal (i.e. complexity of privacy requirements)

Comments:

Item 4. Agency collaboration.

Key Question: What has been your overall experience as a member of a multi-agency collaboration?

Possible subjects to explore further:

- How would you compare you experience working within an agency to your experience working among multiple agencies?
- What tasks or implemented processes are being used by this committee to ensure success of the initiative?
- If a problem or barrier is encountered, what steps are taken by you and your agency to remedy the situation?
- Do you feel the collaborative effort to implement and sustain the HIE is largely a success?

Comments:

Item 4a. Agency collaboration continued.

Key Question(s): The following questions are specific to collaboration that took place within the initiative.

1. **Which of the following would you label as the purpose of the collaboration?**
    1. Creating a web of communication
    2. Working together to ensure that tasks were done
    3. Sharing resources to address common issues
    4. Merging resources to create or support something new
2. **Which of the following best describes the strategies of the collaboration?**
    1. Loose or no structure
    2. Minimal structure
    3. Central body of people with specific tasks
    4. Specific and complex strategies and tasks identified
3. **Which of the following best describes the leadership and decision-making processes within the collaboration?**
    1. Minimal or no group decision-making

2. Non-hierarchical, decisions tend to be low stakes; voluntary leaders
3. Decision-making mechanisms are in place; autonomous leadership
4. Sharing and delegation of roles and responsibilities ; strong leadership

4. Which of the following best describes the interpersonal communication within the collaboration?

1. Communication among members infrequent or absent
2. Some degree of personal commitment and investment; communication informal
3. Communication system and formal information channels
4. Communication is clear, frequent and prioritized

Comments:

Item 5. Establishment of the authority.

Key Question: Public Act 10-117 established a quasi-public agency that will function as the oversight agency for the HIE. The board of this authority is intended to be comprised of various representatives from specific stakeholder groups. What are/were your feelings on the progress of the establishment of this authority?

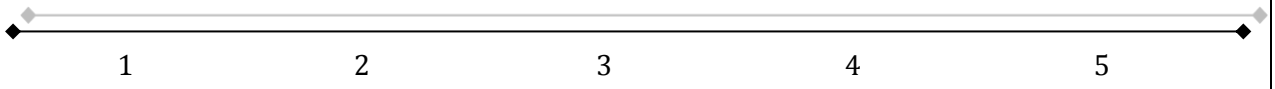
Possible subjects to explore further:

- To what extent have you or your agency participated in the establishment of this authority? To what extent will you participate?
- What do you feel are critical factors for the success of the authority?
- What parties do you feel must be represented in order for the authority to accomplish the task of overseeing the initiative?

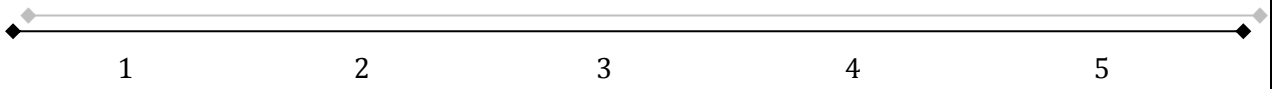
Comments:

Item 6. Sustainability.

Key Question: A significant aspect of the initiative that warrants consideration is the sustainability of the HIE. On a scale of 1 to 5, with 5 being most likely, how would you rate the likelihood of sustainability of the project for the next ten years?



For the next twenty years?



Possible subjects to explore further:

- What do you consider to be important elements necessary to achieve sustainability?
- What are the biggest obstacles to attaining a sustainable HIE in Connecticut?
- What do you feel are the important lessons that should be learned from other states with regard to producing a sustainable business model?

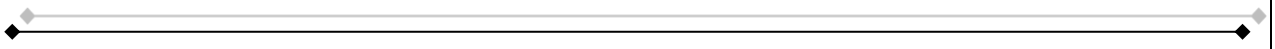
Comments:

Item 7. Overall satisfaction.

Key Question: How would you rate your overall satisfaction with the following elements of the Connecticut HIE:

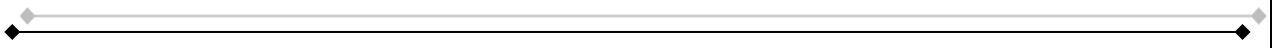
1. **People:**

DPH



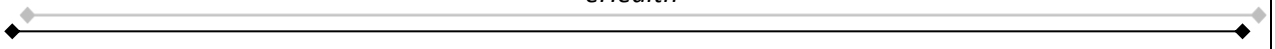
Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor unsatisfied	Somewhat satisfied	Very satisfied

DSS



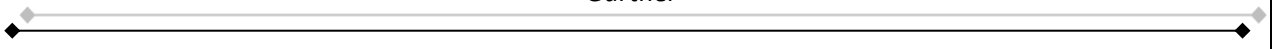
Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor unsatisfied	Somewhat satisfied	Very satisfied

eHealth



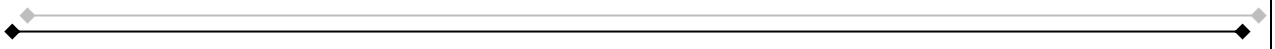
Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor unsatisfied	Somewhat satisfied	Very satisfied

Gartner



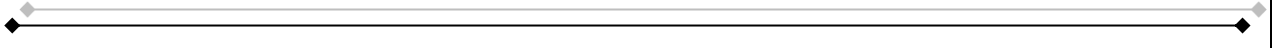
Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor unsatisfied	Somewhat satisfied	Very satisfied

Public involvement



Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor unsatisfied	Somewhat satisfied	Very satisfied

2. **Level of motivation of those involved**



Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor unsatisfied	Somewhat satisfied	Very satisfied

3. Skill sets of those involved

Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor unsatisfied	Somewhat satisfied	Very satisfied

4. Resources (federal)

Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor unsatisfied	Somewhat satisfied	Very satisfied

5. Resources (state)

Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor unsatisfied	Somewhat satisfied	Very satisfied

Comments:

Item 8. Recommendations.

Key Question: What recommendations would you make with respect to the HIE?

Possible subjects to explore further:

- Recommendations for:
- The authority
- The committee
- Other states preparing to initiate HIE

Comments:

Item 10. Freelisting

Key Question: Please list three or more words that come to mind when you think about the Connecticut Health Information Exchange intiative:

_____

_____

_____

_____

_____

Item 11. Further information.

Key Question: Would you allow us to contact you or others in the future for information regarding your perspectives on the HIE initiative?

☐ Yes ☐

If so, may we have the names of other individuals whose background or professional responsibilities indicate they may have an interest in the Connecticut HIE initiative?

Name: _____ Email (if known): _____

Name: _____ Email: _____

Name: _____ Email: _____

Name: _____ Email: _____

Name: _____ Email: _____

Stakeholder Interview Guide: Non-HITE-CT Board Member

Health Information Technology Exchange of Connecticut: UCHC Evaluation
STAKEHOLDER INTERVIEW GUIDE
Non-Board Members

I. Purpose of Interview: ***To be described to participant if necessary.***

"The purpose of this interview is to assess the current functionality of the health information exchange initiative in the state of Connecticut. This interview represents an important part of the current HIE evaluation and attempts to extract information about both the successes and challenges associated with the initiative. Though the interview will aim to assess certain components of the initiative, all questions are open-ended and were designed to elicit as much feedback from participants as possible. The information you provide during this interview will be critical in answering important questions about the state of the current HIE initiative. However, at no point will the identity associated with any specific comments or opinions be disseminated in any form, written or otherwise."

II. General Information: ***To be completed prior to beginning the interview.***

1. Name of individual being interviewed:

2. Title of individual being interviewed:

3. Agency with which individual is affiliated:
   - ☐ Connecticut Department of Public Health
   - ☐ Connecticut Department of Social Services
   - ☐ Other (please specify: _____)

4. Date of interview: _____

5. Interview conducted: In person By phone

6. Interviewer: _____

7. Indicate whether this is an initial __ ___ or follow-up_____ interview.

   If this is a follow-up interview, please specify the interview number (if known): _____

8. Interview start time: _____ Interview end time: _____

9. Committee membership: Legal & Policy Executive Special Population Financial
Business & Operations Technical Personnel

10. Have you attended any of the public meetings? Yes No

11. If yes, how many meetings have you attended? _____

III. Roles and Responsibilities

12. Can you provide information regarding your role, both within your agency and at large, as it pertains to the current HIE initiative?

13. What has been the biggest accomplishment for you or your agency with regards to the HIE initiative?

14. How does the HIE intersect with your professional visions/goals/etc.?

15. How long have been following the HIE initiative in Connecticut?

16. What role do you feel you can play in HITE-CT?

IV. Attitudes toward the Initiative

17. What were your initial feelings about the initiative?

18. What are they at this moment in time?

19. If your feelings have changed, to what elements of the initiative do you attribute this change in opinion?

20. Ultimately, where do you see health information exchange capabilities in Connecticut in 2011? 2015?

V. Challenges and barriers associated with the initiative

21. Achieving health information exchange capabilities across the state of Connecticut represents a significant challenge. Do you agree with this statement? Yes No

22. What have been the largest barriers encountered for you and/or your agency in attempting to meet this goal?

(Financial (i.e. limited budget, resources)	Governmental (i.e. poor leadership)
Technological (i.e. infrastructure, vendor solution)	Legal (i.e. complexity of privacy requirements)
Other	

23. Do you feel these challenges are surmountable or do you feel they will ultimately prevent attainment of the major HIE goals?

VI. Collaboration

24. What has been your overall experience about this multi-agency collaboration?

25. What tasks or implemented processes are being used by this committee to ensure success of the initiative?

26. Do you feel the collaborative effort to implement and sustain the HIE is largely a success?

27. The following questions are specific to collaboration that took place within the initiative.
Please check all that apply

Which of the following would you label as the purpose of the collaboration? 5. Creating a web of communication 6. Working together to ensure that tasks were done 7. Sharing resources to address common issues 8. Merging resources to create or support something new	**Which of the following best describes the strategies of the collaboration?** 5. Loose or no structure 6. Minimal structure 7. Central body of people with specific tasks 8. Specific and complex strategies and tasks identified
Which of the following best describes the leadership and decision-making processes within the collaboration? 5. Minimal or no group decision-making 6. Non-hierarchical, decisions tend to be low stakes; voluntary leaders 7. Decision-making mechanisms are in place; autonomous leadership 8. Sharing and delegation of roles and responsibilities ; strong leadership	**Which of the following best describes the interpersonal communication within the collaboration?** 5. Communication among members infrequent or absent 6. Some degree of personal commitment and investment; communication informal 7. Communication system and formal information channels 8. Communication is clear, frequent and prioritized

VII. Establishment of the authority.

Public Act 10-117 established a quasi-public agency that will function as the oversight agency for the HIE. The board of this authority is intended to be comprised of various representatives from specific stakeholder groups.

28. What are/were your feelings on the progress of the establishment of this authority?

29. To what extent have you or your agency participated in the establishment of this authority? To what extent will you participate?

30. What parties do you feel must be represented in order for the authority to accomplish the task of overseeing the initiative?

VIII. Sustainability

31. A significant aspect of the initiative that warrants consideration is the sustainability of the HIE.

On a scale of 1 to 5, with 5 being most likely
How would you rate the likelihood of sustainability of the project for the next ten years?

1 (least likely)	2	3	4	5 (most likely)

For the next twenty years?

1	2	3	4	5

IX. Overall satisfaction

	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor unsatisfied	Somewhat satisfied	Very satisfied
People					
DPH					
DSS					
e-Health					
Gartner					
Public Involvement					
Level of motivation of those involved					
Skill sets of those involved					
Resources (federal)					
Resources (state)					

X. Recommendations

33. What recommendations would you make with respect to the HIE?

The authority	**The committee**
Other states preparing to initiate HIE	

XI. Freelisting

Please list three or more words that come to mind when you think about the Connecticut Health Information Exchange initiative:

XII. Would you allow us to contact you or others in the future for information regarding your perspectives on the HIE initiative?

Yes No

Would you allow us to contact you or others in the future for information regarding your perspectives on the HIE initiative?

Name: _____ Email (if known): _____

Name: _____ Email: _____

Name: _____ Email: _____

Name: _____ Email: _____

Name: _____ Email: _____