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February 2019

**Developing a Strategic Informatics Roadmap**

*Guidelines and considerations*

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# Part I. Introduction to the user

## Background

As health departments of all sizes respond to ever-increasing information demands, many of them realize that a health department-wide strategy must be developed that provides for appropriate and forward-looking planning and governance for information and information technology. This guidance is intended to support such strategic planning for informatics. It is provided as guidance only; the final content of your roadmap must reflect your unique informatics capacity, needs and vision. Ideally, it follows and builds on a thorough self-assessment of your informatics capacity.[[1]](#footnote-1) While establishing a clear vision and goals is critical, building an actionable roadmap also requires that you objectively know from where you are starting.

While the term “health department” is used throughout this document, developing an informatics strategic roadmap could certainly be done by a single unit within a health department, such as the communicable disease or chronic disease program, the public health laboratory or a clinical services section.

## Critical success factors

As with any major initiative hoping to achieve lasting change and impact, there are factors that can help ensure success.

* *Senior leadership support.* All research on organizational change points to the critical need for senior leader support and buy-in. This goes far beyond simply being informed; it means a leader who is willing to intervene to set overall priorities, find resources, resolve conflicts, and generally stay the course through the ups and downs of rolling out and institutionalizing a new initiative.
* *Governance.* A strategic initiative that could impact the entire health department requires a vehicle for monitoring and evaluating progress, making decisions and keeping the parts coordinated. The governance group should have representation from both leadership and the affected programs (and perhaps others within or outside the health department, such as HR or the Medicaid program).
* *Effective communication and change management.* A strategic informatics initiative is basically a change management project – the health department will be functioning differently in terms of how it manages and uses information and information technology as strategic resources. With change comes resistance from those impacted by the change. Fortunately, resistance can be understood and addressed through effective change management and communications. Do staff have the necessary awareness, desire, knowledge and ability to adjust to change? And are they getting sufficient reinforcement?[[2]](#footnote-2)
* *Adequate and diverse funding*. It is seldom easy to find adequate, sustainable funding for new public health initiatives, particularly those that cross programmatic “siloes.” Yet every public health program and funding stream is predicated on having and using reliable information. Mechanisms to cost-allocate can be challenging to establish and administer but provide a means for multiple programs to contribute equitably to shared/health department-wide initiatives. A major risk is to have the informatics program be solely or largely funded from one source, since that can come to define purpose and scope of the program.
* *Link to other strategic priorities*. One way to help provide momentum to a new informatics strategy is to tie it to one or more health department-wide initiatives or priorities. Doing so can help to make the purpose of the informatics strategy more concrete. The risk is in overly connecting it to other initiatives so that it doesn’t have a purpose and identify or its own, and risks being dropped when and if the other initiatives are abandoned for whatever reason.
* *Survive changes in administration*. As governmental entities, health departments, particularly at the state level, are subject to changes in leadership, administrations and priorities. But the need to use information and information technology in order to be effective and credible as a health department does not change. Even though it can be important to link informatics strategy to broader health department strategic initiatives and priorities (see preceding bullet), it should not be *so closely linked* as to risk being dismantled in a change of administration. The key is to make clear that the informatics strategy is *in support of* other initiatives and priorities; in other words, informatics is not an end in itself but always a means to an end, regardless of what that end may be.

## Instructions on the guidance in part II

This guidance provided in part II below can support your informatics planning in several ways:

* The headings below can serve as template for an informatics strategic and operational plan.
* The *key elements* section highlights possible content under each heading, pointing to content, activities, priorities or other information to include in your plan.
* The *considerations* section provides “things to think about” in building your plan.

The headings, key elements and considerations are purely as an aid to you in being thorough and systematic in your planning; use those sections that are most meaningful to your planning efforts.

We use the term *Informatics Strategy Roadmap* as a generic title; you may choose another that better fits your purposes, such as *Informatics Strategy and Operational Plan, Strategic Plan for Building Informatics Capacity,* etc.

Many resources to support your planning and implementation can be found at [www.phii.org/resources](http://www.phii.org/resources), and at <http://phii.org/infosavvy>.

# Part II. Strategic Informatics Roadmap Template

### Executive summary

*Key elements to include:*

* Include the purpose of the document, why it was created and for what desired ends. This will help orient the reader quickly.

*Considerations:*

* How long or short an executive summary will be is always a matter of judgement, but consider including all of the goals and objectives, including any milestones, evaluation measures, etc., since that is the key information you will need to have most accessible over time.

### Background and purpose

*Key elements to include:*

* What is the purpose of this document?
* What is the scope of this document?
* Why was it created? Was it motivated by one or more specific needs?
  + Examples include health department accreditation, migration to a new electronic health record, the creation of a new statewide health information exchange, or ensuring readiness for Meaningful Use.
* What key issues/problems/opportunities is it intended to address? What are the current informatics capabilities on which you seek to build? (See footnote on page one for more on assessing and documenting current informatics capabilities.)
* What is intended to be improved or specifically addressed in the roadmap?
* What was the process and the time frame for creating this document? Who was involved? Who had/has what roles?
* What was the review and approval process?
* What assessment or other planning activities provided inputs into the plan?
* What is the schedule for ongoing review and updating?

*Considerations:*

* You may want to define *informatics* and other key terms used throughout the document. This could either be in the background section, as footnotes, in an appendix or in another format.
* Include the process and approval processes because memories are short!
* You may want to have problems/issues/challenges (the second bullet above) be a separate section that comes after this section and before the vision.
* Consider whether and where you want to include acknowledgements.

### Vision

*Key elements to include:*

* A vision statement should be a clear, preferably single sentence statement of aspirational intent: What will be different because of this strategy and operational plan?
  + Examples:
    - *Information available when and where needed to assess and improve the health of all populations.*
    - *Improved population health through effective use of information and information technology.*
    - *Improved public health practice and outcomes enabled by applied informatics methods.*

*Considerations:*

* A vision is something people can see; make it is as concrete as possible while still being aspirational. A good vision statement also avoids simple platitudes about information and information technology goals.
  + Consider tying the vision, or the rationale for it, to broader public health initiatives such as [Chief Health Strategist](http://www.phf.org/phfpulse/Pages/How_Will_We_Get_There.aspx), [Public Health 3.0](https://www.healthaffairs.org/do/10.1377/hblog20161121.057630/full/) or [accreditation](http://www.phaboard.org/).
* Do you want the focus to be on informatics or on the broader theme of information use and management?
  + The term *informatics* is still not well understood by many in public health and can be equated with “IT.” Consider keeping the focus on information use/exchange/management, not systems or technology. This can also help to prevent the plan becoming a central IT document.
* How do you define public health informatics (if you use the term)?
  + Possible definitions:
    - The science that supports effective use of information and information technology to improve public health practice and outcomes. (PHII)
    - Getting the right information to the right people at the right time to improve decisions that impact health. (PHII)
    - The systematic application of information, computer science and technology to public health practice, research and learning. (CDC)

### Guiding principles

*Key elements to include:*

* Guiding principles are foundational beliefs that serve to anchor your planning. As such, they influence your goals and objectives, and contribute to defining the attributes of the future state you want to achieve.
* Principles should be resilient enough to withstand the tussle of the planning process without constantly changing as thinking evolves.
* Guiding principles are generally high-level and cross-cutting.
* Examples of guiding principles include:
  + *The informatics roadmap will support meeting our department’s mission.*
  + *Our focus is on information as a strategic resource, not on IT for its own sake. Technology will be driven by program requirements.*
  + *Information needs to be liberated and used to be of value. Information increases in value with use.*
  + *Effective execution of this plan requires appropriate governance and accountability.*
  + *We will share resources where possible, breaking down siloes of resources and solutions.*
  + *We seek to improve the efficiency of our workflows so that more time can be spent understanding and acting on the data.*
  + *We will adhere to standard IT lifecycle management principles and methods.*
  + *We use national health vocabulary, messaging and transport standards.*
  + *We adhere to principles of information governance.[[3]](#footnote-3)*
  + *We will strengthen our commitment to preserving the confidentiality of the data in our stewardship, even as we put that data to more meaningful uses.*

*Considerations:*

* While guiding principles may not seem sufficiently practical or applied to you, they can in fact have a huge operational and tactical impact on goals and objectives. They document your approach, philosophy and beliefs as you work toward your vision and goals.
* To have much impact, guiding principles must be ambitious and may be controversial, held up as “guiding lights” to how things will be different in the future. Governance is how the health department holds itself accountable for adhering to its principles (see the section on governance below).
* Don’t go overboard on either the number or ambition of the principles; only include those you truly believe in and are willing to make adjustments to live up to.

### Goals

*Key elements to include:*

* Goals should be at the strategic level and aspirational; operational and concrete detail comes in the objectives. In other words, goals focus on the *what*, not the *how*.
* Goals would likely extend for three but no more than five years.

*Considerations:*

* You might consider organizing your goals into the three elements of an informatics-savvy health department[[4]](#footnote-4):
  + Informatics vision, strategy and governance
  + Skilled workforce
  + Well-designed, effectively-used information systems
* Tying roadmap goals to related goals or objectives in an overall health department strategic plan can be a way to give the roadmap more force and visibility, and hopefully can increase the likelihood of receiving ongoing leadership support.
  + A potential challenge is to not link so closely so that the informatics strategy is abandoned with a change of administration.
* Consider having goals in a variety of areas, both internally and externally facing, such as uses and sharing of information across internal programs/units, information system modernization, improved exchange with community partners, workforce development in informatics, and governance/decision-making.
* Don’t identify too many goals; keep it doable, especially if you have limited resources to implement. Better to be successful in achieving a few foundational goals upon which other achievements can be built.
* The goals are ideally based on priorities identified through thorough self-assessments and stakeholder engagement (see footnote on page 2).

### Objectives, activities and milestones

*Key elements to include:*

* Objectives that are specific, measurable, actionable, results-oriented and time-bound (SMART).
* Objectives that are clearly tied to one or more goals.
* Any assessment activities you will need to conduct to gather additional baseline information (see footnote on page 2).
* Activities related to communicating with staff and any external partners, in or out of government (e.g., the Medicaid program, central IT, a health information exchange, providers/data submitters). See the communications and change management heading below.

*Considerations:*

* Be realistic about activity timeframes, especially if you have limited resources to implement the plan.
* Consider listing who is responsible and/or accountable for each objective and/or activity.
* Regular communication highlighting progress can offset cynicism over whether the roadmap will actually change anything.
* Consider developing a logic model that ties the vision, goals and objectives to internal and external inputs.

### Governance and accountability

*Key elements to include:*

* The most senior person who will serve as executive sponsor. This is the person who may be called upon to set overall priorities, find resources, resolve conflicts, and generally stay the course through the ups and downs of rolling out and institutionalizing a new initiative.
* The governance body and process for implementing the roadmap; that is, how decisions get made and by whom, including who has final approval authority.
* The person with operational authority and responsibility supporting implementation of the roadmap, typically different than the executive sponsor, who might operate under a working title such “Informatics Strategy Coordinator.”

*Considerations:*

* Having an effective executive sponsor is cited in literature across many fields as the number one critical success factor, the absence of which is cited as the number cause of failure.
* The coordinator may need to be a new or existing position with a portion of their time devoted to supporting governance decision-making, facilitating implementation, reporting to the executive sponsor and other leadership, and overseeing evaluation.

### Budget and funding sources

*Key elements to include:*

* Estimates for funding required to plan and implement the roadmap objectives and activities beyond those that could be contributed through in-kind staff participation and contributions. This might include a portion of someone’s time to coordinate and manage implementation of the roadmap.
* Estimates of any cost savings through use of shared services, consistent use of data standards, or other new practices.

*Considerations:*

* Given the broad implications for this roadmap, especially if it is for the entire health department, a broad funding source such as general funds or agency indirects may be most appropriate.
* Avoid using a single programmatic funding source or the roadmap initiative will risk becoming associated with that program activity and its priorities only.

The following content areas may not be essential to your Roadmap but are included here for completeness. Select whichever are most relevant to your vision, goals and objectives.

### Workforce development/training in informatics

*Key elements to include:*

* For which types of staff positions is informatics training most relevant and provide the greatest value to the health department?
* Which competencies are most relevant to focus on for which types of positions?[[5]](#footnote-5)
* How will informatics knowledge, skills and abilities be assessed?
* How can staff new to informatics benefits from their colleagues who have more experience (e.g., brownbag lunch seminars, mentoring, on-demand recorded webinar-like trainings, etc.)?
* Who might serve as an informatics training/capacity building coordinator for the health department, someone who monitors and communicates available training nationally?
* Are there informatics fellowship programs available, or partnerships with university informatics programs that could be created or acted upon?
* Are key staff involved in the informatics committees of the public health membership associations (ASTHO, NACCHO, CSTE, APHL, etc.)?
* How will project management expertise be available to programs for larger information system projects (major upgrades, system migrations, etc.)?
* How will business analysist expertise be available to program for larger information system projects (major upgrades, system migrations, etc.)?

*Considerations:*

* Staff positions that would likely benefit from informatics training include those whose roles include tasks such as data exchange/interoperability, data quality, data reports, data analytics, among others. Also, any staff person who manages or works with complex information systems (surveillance systems, registries, WIC, etc.) would benefit in terms of being more skilled in how an information system could better support their needs and workflows.
* No one will have—or needs—all of the informatics competencies. One approach is to have staff self-assess which competencies, knowledge, skills and abilities are most germane and of interest to them.
* Informatics training content is growing, from association webinars, conferences, the PHII Informatics Academy[[6]](#footnote-6), CDC[[7]](#footnote-7) and other sources. Having one person with the responsibility of monitoring and communicating new training/educational offerings will be critical to workforce development efforts.

### Information governance

*Possible elements/governance principles to include (and examples)[[8]](#footnote-8):*

* Accountability - *An accountable member of our senior leadership will oversee the information governance program and delegate responsibilities for information management.*
* Transparency – *Our processes and activities related to information governance will be documented in an open and verifiable manner.*
* Integrity - *Our information governance program will be constructed so the information generated by, managed for, and provided to the organization has a reasonable and suitable guarantee of authenticity and reliability.*
* Protection - *Our information governance program must ensure the appropriate level of protection from breach, corruption and loss are provided for information that is private, confidential, secret, classified, essential to business continuity, or otherwise requires protection.*
* Compliance - *Our information governance program will be constructed to comply with applicable laws, regulations, standards and organizational policies.*
* Availability – *We will have the ability to identify, locate and retrieve the information required to support our ongoing activities.*
* Retention – *We will maintain information for an appropriate time, taking into account its legal, regulatory, fiscal, operational, risk and historical requirements.*
* Disposition – *We will provide secure and appropriate disposition for information no longer required to be maintained by applicable laws and our organization’s policies*

*Considerations:*

* Decide if you want to use the term *data governance* or *information governance*. Data governance is generally an IT responsibility and focuses on information storage and movement, and usually includes data security, data lineage, service levels, master data management and data loss prevention. Information governance presumes effective governance of data, since data are the building blocks of information (information cannot be reliable if the data are not reliable). *Information* is considered at a higher level of meaning and action-ability than *data.*
* Effective information governance requires senior leadership support and someone who has access to senior leaders to coordinate the effort.
* PHII has a separate guidance document on information governance which can be requested through the PHII website ([www.phii.org](http://www.phii.org)).

### Organization of informatics within the health department

*Key elements to include (if an informatics office exists or is being considered):*

* Where within the health department or broader agency would an informatics unit/office/program positioned? What is the rationale for that placement?
* What are the primary *internal* responsibilities of the program? What are the *external* responsibilities in working with community or other governmental partners?
* How is the informatics unit/office/program differentiated from IT? How do they complement each other?

*Considerations:*

* It may be that at the present you can only designate one person to have health department-wide informatics responsibilities; in other words, you are not establishing a unit, program or office with multiple staff. Even establishing a single person with organization-wide responsibilities for coordination and/or support is an important and big step forward.
* PHII has a separate guidance document on organizing informatics within a health department, which can be requested through the PHII website ([www.phii.org](http://www.phii.org)).
* What name will you give to the unit/office/program? “Office of Public Health Informatics Support” says something quite different than “Office for e-Health Strategy.”
* Sample position descriptions for various levels of informatics staff can be found at <http://phii.org/resources/view/6423/workforce-position-classifications-and-descriptions>.

### Change management and communications

*Key elements to include:*

* How will staff awareness, desire, knowledge and ability to adjust to change be assessed?[[9]](#footnote-9)
* How will resistance to change based on any of those five factors be addressed? By whom? Using what communications channels (newsletters, staff meetings, letters form the Commissioner/Secretary, etc.)?
* Which internal and external stakeholders are most important to understand in terms of possible resistance, needed buy-in and messages?
* How will your communications plan address the above to inform and engage staff in the changes?
* What messages can be provided, and by whom, to address the above and reinforce the value to the organization and to them as staff? (*Note:* A communications and change management plan[s] may need to be done as a separate process and document from the informatics strategy roadmap.)

*Considerations:*

* Consider designating someone other than the person with primary operational responsibility for executing the informatics strategy be responsible for change management and communications. Often, the person most steeped in the day-to-day details can’t “see the forest for the trees,” and can lose touch with the realities of those impacted by the change, over-estimate how often they communicate and the effectiveness of that communication, and over-estimate the level of support from others.

### Risks and risk mitigation

*The table below includes sample risks and risk mitigation strategies.*

| Sample risks | Sample risk mitigation strategies |
| --- | --- |
| The informatics roadmap is abandoned with a change of leadership/administration. | Don’t tie the roadmap too tightly to current strategic priorities or be too dependent upon only one senior “champion.” The more widespread the adoption and support, the more longevity the roadmap is likely to have. |
| Staff state they are too busy to take on learning new skills. | Be proactive in reinforcing that informatics knowledge and skills can make staff’s information- and information system-related tasks more efficient and even rewarding. |
| No training funding is available for informatics. | Much can be done without new funding by leveraging what is increasingly available from the membership associations and elsewhere (see the workforce development section). Also, consider using indirect as a source for supporting health department-wide training initiatives. |

### Assumptions

*Key elements to include:*

* What assumptions about internal or external circumstances are being made in developing this plan? What do you want to make explicit for historical reasons if nothing else? Examples might include:
  + “Our credibility as a data sharing partner is contingent upon our becoming more sophisticated in our use of health data standards, more robust in data exchange/interoperability capabilities, and more innovative and timely in how we use and communicate information.”
  + “We likely won’t be able to create and fund an actual informatics position but we can pursue increasing the informatics knowledge, skills and abilities across our workforce, especially with those whose primary responsibilities is to work with data and information.”

*Considerations:*

* It can be important to state the assumptions that in part drive the creation and shape of the informatics roadmap because it will help readers, both present and perhaps more so in the future, understand the context and the drivers, internal and external, underlying the vision, direction, goals and activities of the roadmap.

### Health IT environmental scan

*Key elements to include:*

* How widespread is adoption of electronic health record systems (EHRs) in hospitals? In ambulatory care settings? In long-term care settings?
* How many providers and hospitals are participating in the CMS Meaningful Use program?
* What types of data exchange are most common? E.g., Continuity of Care Documents (C-CDA), lab results, immunizations, etc.)? Where is there a need for more exchange?
* What are the largest amounts of electronic data/messages coming into the health department? Going out of the health department to others electronically?
* Which transport protocols (e.g., Direct, SFTP, SOAP web services) are most in use by healthcare? Which does the health department support?
* Does one or more health information exchange (HIE) exist within the jurisdiction? Does it/they pass messages from healthcare/data suppliers to public health? Pass messages from public health to others? In what volume? Are they expected to grow in the next few years? Is public health part of the HIE’s governance? Does the HIE participate in other ways (committees, etc.)?
* Who within the jurisdiction is most advanced in population health analytics, regardless of how they define “population”?

*Considerations:*

* Because public health is part of a larger health information ecosystem, understanding and documenting (including assessing if a prerequisite to documenting) the health IT landscape is a critical aspect of comprehensive planning to building information capabilities within the health department.
* Being a credible data exchange partner implies being informatics-savvy; that is, having a clear vision and strategy/roadmap for using information strategically, having a skilled workforce, and having effectively-used and well-designed information systems.
* For an example of jurisdiction-wide health IT assessments, see <http://www.health.state.mn.us/e-health/assessment/index.html>.
* Population health analytics is a rapidly growing and increasingly prominent area of healthcare operations and health IT investment. Health departments can’t compete with the spending being done in this area by health care, but they do have critical expertise in understanding and acting on population level data which they can bring to the table.

1. This document does not address assessment approaches for identifying needs, challenges, current states. See the Informatics-savvy Health Department Self-assessment, the Interoperability for Public Health Agencies self-assessment tool, and the Public Health Informatics Profile Toolkit for three such assessment approaches, all of which can be downloaded at no cost from [www.phii.org](http://www.phii.org)/resources. [↑](#footnote-ref-1)
2. See <https://www.prosci.com/adkar> for more on change management. [↑](#footnote-ref-2)
3. See section on Information Governance below. [↑](#footnote-ref-3)
4. www.phii.org/infosavvy [↑](#footnote-ref-4)
5. See *Applied Public Health Informatics Competency Framework* at <http://phii.org/resources/view/9462/applied-public-health-informatics-competency-model>. [↑](#footnote-ref-5)
6. [www.informaticsacademy.org](http://www.informaticsacademy.org) [↑](#footnote-ref-6)
7. <https://www.cdc.gov/publichealth101/informatics.html> [↑](#footnote-ref-7)
8. Based on American Health Information Management Association’s *Information Governance Principles for Healthcare* (2014) found at[www.ahima.org/topics/infogovernance](http://www.ahima.org/topics/infogovernance) [↑](#footnote-ref-8)
9. See <https://www.prosci.com/adkar> for more on change management. [↑](#footnote-ref-9)