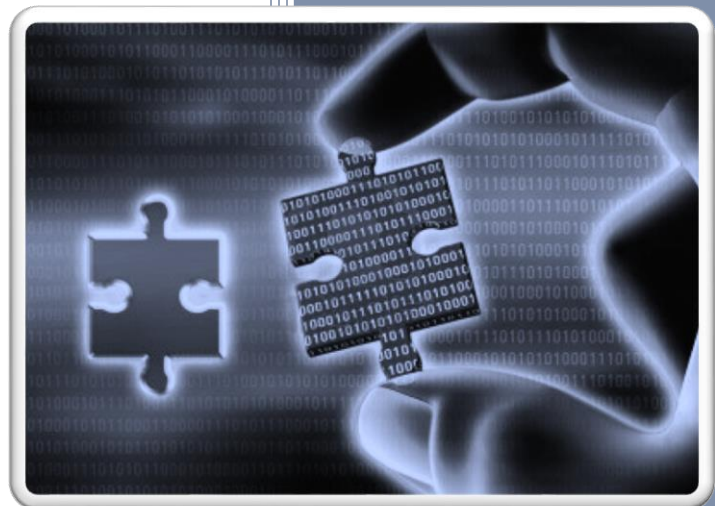




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CHANGE MANAGEMENT: BEST PRACTICES IN PUBLIC SAFETY DATA SHARING PROJECTS



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**IJIS Public Safety Technical Standards
Committee (IPSTSC)**

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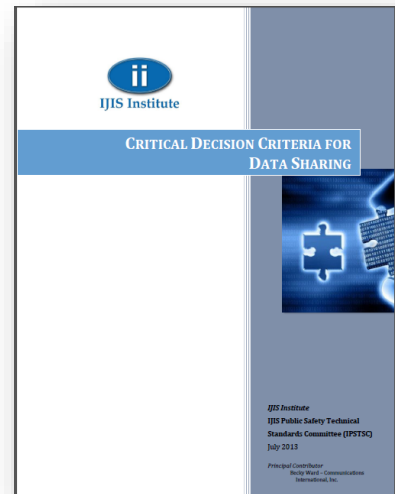
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INTRODUCTION

This paper is a follow-on to the IJIS Institute white paper *Critical Decision Criteria for Data Sharing* that provides guidance to practitioners on planning to implement a data sharing solution.

Practitioners asked for information about best practices in data sharing projects and how they can increase the odds that their project will be successful. They also asked how they can manage employee resistance and apathy to change, both prevalent in data sharing projects and, oddly enough, even at the executive levels where the benefits should be most evident.

This paper is crafted specifically for Computer Aided Dispatch (CAD) and Records Management Systems (RMS) data sharing projects, such as CAD-to-CAD and RMS-to-RMS, but the concepts are universal. It details guiding principles founded in change and project management and provides mini case studies on projects that struggled. These mini studies and the accompanying lessons learned were volunteered by a variety of people associated with these projects, from consultants, project managers, executive sponsors as well as users of the systems. The ‘what went right, what went wrong and what could have been done better’ can be distilled into best practice concepts.



Intended Audience

Practitioners in leadership positions, individuals in information technology roles, consultants, and system integrators can benefit from the best practices in public safety data sharing detailed herein to help improve their projects’ successes.

Purpose

With the high rates of failure in IT projects that are evident today, it has become critically important to get a project started on the right path using those best practices learned from both successful and unsuccessful projects. The [Standish Group](#) reported in a 2009 article that 68% of projects failed or were challenged.¹ The 2014 report was even more alarming, with 52% challenged, 42% failed, and 6% successful.² As agencies strive to deliver successful projects the ability to manage change is a critically important factor, and the purpose of this paper is to provide best practices information from both industry and the public sector in change management and project delivery.

¹ The Standish Group, CHAOS Summary 2009

² The Standish Group, CHAOS Summary 2014

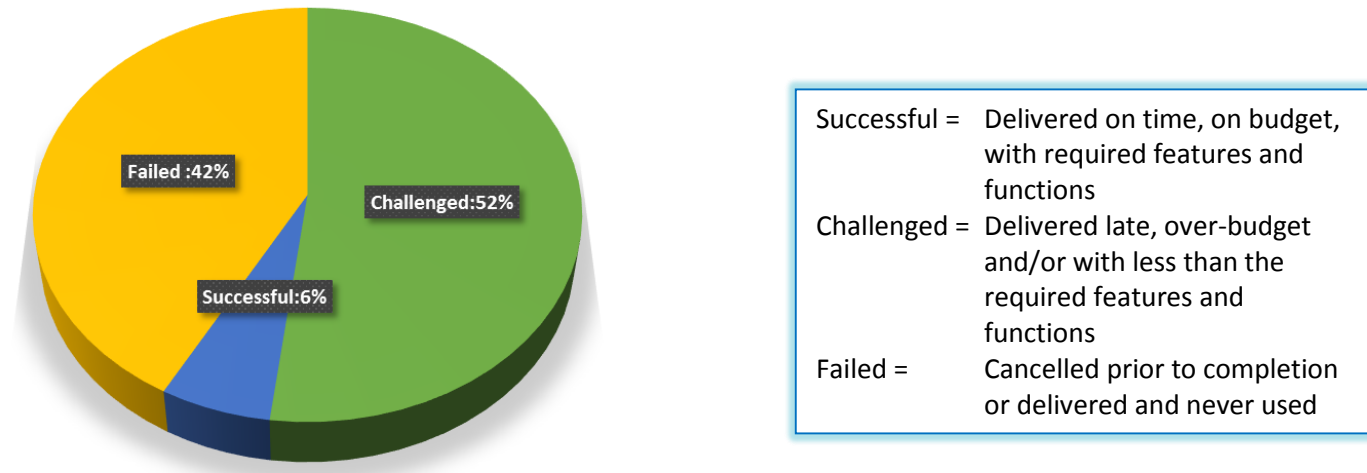


FIGURE 1: STANDISH GROUP DATA FROM 2014

The purpose of this paper is to:

- Educate the reader on the importance of change management in data sharing projects
- Share insights provided by practitioners, subject matter experts, solutions architects, business analysts, consultants, and project managers
- Present predictors of success to assist practitioners and consultants in planning for project success
- Provide best practice recommendations
- Offer reference material that shows the correlation between change management and meeting project objectives, timelines, and budget

The paper begins with the assumption that data sharing is a viable goal with valuable benefits, and has been shifting from a *nice-to-have* to a *need-to-have* for public safety. The bottom line is that data sharing saves lives. The key benefits of data sharing most often articulated were:

- Reduced response times
- More informed decisions with better, richer, and faster information
- Situational awareness of nearby potentially impactful events
- Enhanced officer, responder, and citizen safety
- Improved outcomes with improved citizen service and satisfaction
- Increased productivity with reduce costs or cost avoidance
- Increase transparency with increased communications and collaboration
- Efficient use of resources with lessened duplication of effort

Project management, while overlapping change management in many areas and ideas, is not a focus of this paper.

Methodology

The approach employed in gathering the data for this paper was to interview as many people as possible who were associated with data sharing projects. The interviews were not formally structured, yet all posed three key questions to the person being interviewed:

- 1. What did you do right?**
- 2. What did you do wrong?**
- 3. If you had a do-over, what would you do differently?**

The IJIS Institute Public Safety Technical Standards Committee (IPSTSC) members also interviewed each other. Collectively, the committee members interviewed have more than 250 years of involvement with data sharing projects, including implementing and supporting large-scale, mission-critical public safety systems. These implementations range in size from a small agency with one service, to major metropolitan areas serving multiple jurisdictions and multiple agencies, to statewide and national systems.

In addition, the committee read several books and reviewed a number of articles on change management and discussed the insights while conversing on the interviews obtained. These books are listed in the References section.

Within the last 12 years or so, agencies have begun to share public safety data (e.g., CAD-to-CAD) for situational awareness and enhanced mutual or automatic aid and records data (e.g., RMS-to-RMS) for enhanced intelligence and predictive policing. The interviewees all had experience with public safety data sharing projects that involved change at the stakeholder level in order to achieve success. Interviews were documented, and then evaluated for common patterns and themes.

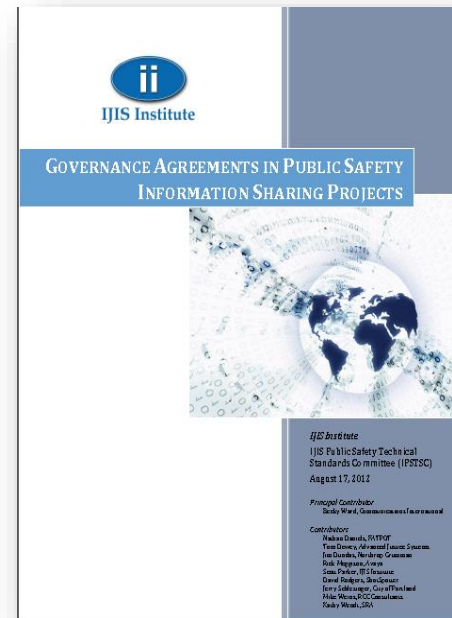
Our collective lessons learned fit into patterns strongly associated with change management principles and, therefore, we believe the conclusions are beneficial.

Synopsis

Based on interviews with practitioners, solutions architects, business analysts, consultants and project managers, the IPSTSC Committee found that strong governance of the data sharing project plus knowledge of change management substantially improves a data sharing project's success. These two fundamental elements each constitute a **best practice**.

The IJIS Institute white paper *Governance Agreements in Public Safety Information Sharing Projects* discusses best practices for crafting data sharing agreements, and reviews the components of modern information and resource sharing agreements. Strong governance establishes a platform from which strategies can be effectively executed and is a significant foundational component of any data sharing project. Governance should be in place before the data sharing project begins.

Change management addresses the people side of change. It is a process or approach to transition people to a desired future state. Change management helps stakeholders to accept and embrace change, such as a new data sharing initiative. Many project managers incorporate change management as part of project planning. Many of the project challenges discovered in the interviews had to do with disregarding change management principles. These will be explored in the pages that follow.



CAN YOU PREDICT PROJECT SUCCESS?

Yes, according to the Harvard Business School in an article published in the *Harvard Business Review* titled *The Hard Side of Change Management*.³ The authors state that while culture, leadership and motivation are important, managing these aspects is not sufficient in transformational projects. The so-called *hard factors* which can be measured, communicated, and influenced are actually predictive of success.

The paper presents the best predictive factors for project success and use the acronym **DICE**.

Duration: The **duration** of time until the project is completed. A short life span is better than an extended one, and, if not short, then the amount of time between reviews of milestones must be more frequent.

Integrity: The project team's performance **integrity**. Essentially, it is the team's ability to complete the initiative on time, and this depends on team members' skills and traits relative to the project's requirements.

Commitment: The **commitment** to change that top and middle management (C1) and employees affected by the change (C2) display.

Effort: The **effort** over and above the usual work that the change initiative demands of employees.

The paper goes on to convey how to rate each of the factors and offers an empirical formula that anyone can use to assess the likelihood of success of their project:

$$\text{DICE Score} = D + (2 \times I) + (2 \times C_1) + C_2 + E$$

Interestingly, this formula indicates that duration, employees understanding and belief in the value of the change, and the level of employee's efforts beyond daily duties have less weight than the implementation team's ability and the executive leadership team's communication of belief in the value of the project.

So what does this mean for public safety data sharing projects? Since data sharing always involves two or more agencies, the competence of each organization impacts the sharing project as a whole. If one agency is weak – either in leadership, distracted by other priorities, or overwhelmed implementers – this impacts not only their organization but the entire project.

“...a short project led by a skilled, motivated, and cohesive team, championed by top management and implemented in a department that is receptive to the change and has to put in very little additional effort, is bound to succeed. At the other extreme, a long, drawn-out project executed by an inexperienced, unenthusiastic, and disjointed team, without any top-level sponsors and targeted at a function that dislikes the change and has to do a lot of extra work, will fail.”

The Hard Side of Change Management

By Harold L. Sirkin, Perry Keenan,
and Alan Jackson

³ <http://hbr.org/2005/10/the-hard-side-of-change-management/ar/1>

Key points:

- A longer project managed well and reviewed frequently has a greater chance of success than a shorter project with insufficient oversight.
 - *Pay particular attention to service provider's project management timelines, milestones, and communication plans. If timelines are extended this could be a warning to executive sponsors.*
- The agency project team is arguably more important than the service provider's team. They must embrace ownership of their project and not abdicate responsibility to outside parties.
 - *Project teams must excel at communications, have problem-solving skills, be results-oriented, be methodical yet flexible, and detail-oriented and cohesive.*
- Commitment of two groups within each agency is critical: by senior executives/leaders and by the employees who ultimately must use the new system.
 - *If employees don't see real, visible commitment and backing of a project by agency leaders, they won't accept the change and the project will struggle and likely fail. Commitment must be communicated, and leaders should know it has to be at a level more than twice what they think is needed. If management's voice is missing from a project, it is often viewed as not supported.*
- People will resist change, and not give full effort to a project, if they are already fully consumed with daily responsibilities. Ideally, no one's workload with the new project should increase more than 10% say the paper's authors.
 - *Agency leaders must be cognizant of this fact and must look for ways to adjust the regular workload for the key project team if needed.*

This paper has briefly explored an objective method to assess the likelihood of project success, and it contains many of the elements of change management. What follows digs a little deeper into change management.

WHAT IS CHANGE MANAGEMENT AND WHY IS IT IMPORTANT?

There is a lot of information about change management available! If you Google change management you will get about 105,000,000 returns. If you search *change management books* on Amazon, you will find over 18,000 returns. The first return from Google, as well as the easiest to read, is from Wikipedia.

Wikipedia states, “**Change management** is an approach to transitioning individuals, teams, and organizations to a desired future state.”⁴ This is exactly what a data sharing project entails – changing people, operational units, and organizations from stovepipe, manual operations to automated processes that use technology to increase efficiency and effectiveness.

⁴ http://en.wikipedia.org/wiki/Change_management

As referenced at the beginning of this paper, when many projects fail to deliver on expectations, it is imperative to know how to overcome the risks so your project will succeed. Reading a few good books will benefit any public safety manager, both at the office and with projects outside of work.

Why People Resist Change

Almost all people resist change. Very few people enjoy its turmoil and challenges. If you want your project to succeed it is key to understand this resistance reflex and how to overcome it. Our interviews uncovered the following top reasons for change resistance:

1. Poor communication
2. Misunderstanding the need for change
3. Fear of the unknown
4. Change in the status quo and loss of power
5. Fear of lack of competence
6. Connected to or invested in the old way
7. Low trust of leaders and their motives
8. Change thought to be temporary fad
9. Resentment at not being consulted
10. Changes to routines
11. Exhaustion/saturation
12. Benefits and rewards insufficient to overcome any of the above

Surprisingly, the committee's interviews uncovered more apathy than outright resistance. We hypothesize that, other than consolidation as a way to share data, most data sharing projects involve automation that is largely invisible to the end users – if done correctly with the right service provider. It is incumbent upon project and team leaders to recognize resistance and apathy, and have multiple approaches in place to overcome this type of roadblock.

Approach to Change

Essentially this involves assessing five factors and tailoring your message to various stakeholders accordingly. Critical factors are: the time frame needed to make the change, the extent of the change, the benefits of the change, the amount of resistance to the change, and what's at stake.

In data sharing projects, there is usually no timeframe that dictates project completion unless it is grant expenditure related. However, the chosen architecture of the data exchange will dictate many of the outcomes, from how difficult the implementation will be, to how much work it will be for everyone involved (as well as how functional and scalable it will be). It follows that what is usually lacking is information – communicated to all stakeholders at all levels with more frequency than thought needed – about the benefits of making the change to sharing data, whether it be CAD-to-CAD, CAD-to RMS, or RMS data sharing.

Table 1 reflects different approaches and communications to affecting change. Many authors have different terminology for what they term a change style. One site calls these approaches “Collaborative, Consultative, Directive and Coercive” for example. What is important is that not

one style, by itself, might be perfect for you and your data sharing project. Your approach may have to change over time and a combination of approaches may have to be employed for different stakeholder groups. Different approaches can be used during different phases of a project.

TABLE 1: CHANGE MANAGEMENT STRATEGIES

Approach	Style	Works Best When
Rational: Assumes that people are reasonable and rational	Communicate the benefits and get buy-in; use persuasion.	Timelines are not tight and there is little resistance to change.
Normal: Assumes that people want to fit in with an organization.	Encourage conformity to values and norms of the organization.	Deadlines are loose and there is low resistance to change.
Adaptive: Assumes that people can adapt quickly to change.	Leave it to people to adapt to change...or face consequences. Whoever doesn't adapt is out.	Change is radical and there is strong resistance.
Coercive: Assumes that people will do what they are told, and that they expect to be told.	Use power of authority to force compliance and impose sanctions.	Timelines are tight and the stakes are high. A good choice when resistance is high and people are discontented.

Adapted from Four Change Management Strategies by Fred Nickols

Several sites are referenced at the end of this paper for those seeking more information on styles of change management.

Common Illusions

During the committee's interviews, one project manager stated, "It was amazing the number of illusions that (my) agencies were operating under. Before this project started, a systems integrator came in and told them that all they had to do was two things: sign the contract and sign the check, and everything would be done for them. Shame on any company for saying that, and shame on them for believing it." People hold to illusions because they give (false) hope, avoid responsibility, and dodge conflict.

Illusions common to data sharing projects are:

- We have a vision.
- We know our priorities.
- We know what quality is.
- We know what we need.
- Everyone wants consensus.
- Everyone understands the expectations.
- Everyone understands the consequences.
- Everyone wants the project to be a success.

When getting stakeholders identified and involved and planning communications, it is essential to (gently) expose these illusions and replace them with reality. You must also do a reality check

with the use of the terms *we* and *everyone*, as it is likely that there is no common definition or expectation. Remember that people hear what they want to hear, so verbal communications must ALWAYS be joined with clear, complete, and concise written communications.

There are various forms for stakeholder communication, such as email, newsletters, intranet, social media, etc. No one method works the best and covers all stakeholders. Many communication methods should be used.

Change Management in Data Sharing Projects

Key ideas kept repeating in the interviews conducted: the lack of buy-in at multiple levels within the organization, lack of governance, underestimating the amount of involvement required, poor communications, lack of clearly defined goals and objectives and more. Practitioners should ask their service provider about their change management expertise, guidance, and training.

Kotter's Change Management Model

It is recommended that the reader assemble a modest library of change management books and peruse them for insights. A few books are highlighted as references at the end of this paper but there are many more.

Harvard professor John Kotter's work really struck a chord with the writers of this paper. Not only was it easy to read, but it also seemed to speak to our experience with projects involving public safety. While reading these change management principles it was impossible not to think of past projects where illustrative examples of things done right as well as things that could have been done better were plentiful.

Kotter's Principles

The following key principles are taken from several of Kotter's books, as listed in the References section. Key ideas are synopsized below.

Set the Stage

This two-part section encompasses getting ready for change by helping others see both the need for change and the importance of acting sooner rather than later (or doing nothing at all). Presenting information clearly and logically helps convince people of the need for change and the better results that will associate with the change.

Create a sense of urgency

Kotter recommends that data should be collected, analyzed, and presented clearly to help shape opinion and consensus. You are building your case to make the change imperative.

In public safety data sharing projects, there is increasingly a penalty associated with not sharing information whether between RMS systems or CAD systems (CAD-to-CAD). There are many published examples (newspaper stories) where tragic events occurred due to the lack of data

sharing, most notably those involving failure to dispatch the closest unit in fire and EMS calls. As a side note, having this information at hand can aid in your funding justification in grant applications.

Assemble a leadership team

Kotter suggests that the leadership group must be carefully selected before being placed in charge of guiding the change. They must embrace the sense of urgency and have strong leadership skills. These skills include good communications skills, as well as credibility and authority.

In public safety data sharing projects, visible and vocal leadership support is essential. More projects than not have struggled due to missing support at the highest levels and poor communications among all stakeholder groups.

Decide What to Do

This section details creating a vision of the future.

Develop vision and strategy to clarify how the future will be different

Kotter says that the leadership team should clarify how the future will be different and how people can help make that future a reality.

In public safety data sharing projects, the vision must have a firm foundation in stark reality. This means very careful vendor due diligence and a detailed Statement of Work (SOW). The vision of the future must be realistic and goals must be SMART (specific, measurable, achievable, relevant, and time-based.)

Make it Happen

This section details the core of the project and involves communications, empowerment, publicizing short-term wins, and actively pushing the change.

Communicate for understanding and buy-in

Kotter instructs that leaders need to ensure that all stakeholders understand and accept the vision and strategy. If there is resistance or apathy, you need to gather the additional facts to address the underlying concerns.

There are a lot of stakeholders in public safety data sharing projects. These include people within the organization(s), the political leadership, the funding source, the entire community, and the media. Plan your communications to these stakeholders so that their perception of the project is not only positive (detailing the benefits) but also aligns with reality.

Empower others to act

Kotter says that leaders should remove as many barriers as possible so that those who want to implement the vision can succeed.

In public safety data sharing projects, this can mean a variety of things, from endorsing the project as well as the project leader, to providing the tools needed for daily operations. It may even entail involvement in addressing those resistant to change forcefully.

Produce short-term wins

Kotter advises that leaders are to create (publicize) tangible successes as soon as possible.

In public safety data sharing projects, this is fairly easy as successes are rampant... yet most remain unpublicized. Remember the tip about communicating much more than you think you need? The same rule applies to publicizing successes. This is the easiest way to *prove* the value of the data sharing project. You can also involve your vendor who will likely be delighted to craft a press release detailing the success.

Don't let up

Kotter urges not to let up until the vision is a reality. Keep up momentum with proper messaging and letting stakeholders know the urgency still exists. Use this phase to further reduce or eliminate unnecessary work. Look at everyday work as well and ask if it is still necessary and adds value.

In public safety data sharing projects, this phase can include the opportunity to review workflows. The fact that *we've always done it this way* should be reassessed in light of the automation provided and unnecessary labor eliminated. This is a great time to use automated reports and reduce the length of routine reports.

Make it Stick

Kotter indicates that change is fragile and it is easy to slide back into the past. People yearn for their old comfort zone with the comfort and stability it provided. Change must be supported by a real change in the organizational culture.

Create a new culture

A new culture, strong and supportive of the change, must be vigilant to ensure that the change becomes the new way of life within the organization. Organizational change often loses momentum and can revert to the old way once the champions (the leadership team) either moves on or lightens up (declares victory too soon). The new way of doing business must become a habit for each individual.

In public safety data sharing projects, examples abound of projects that fail this ultimate test – the change is not engrained and does not become a way of life to individuals within the organization. An indisputable warning sign is when anonymous individuals within the

organization speak to the media decrying the new program/application/change and in so many words state that the old way was better. Leaders must be vigilant and dig deep to determine the reason for the resistant – real or imagined – and fix it.

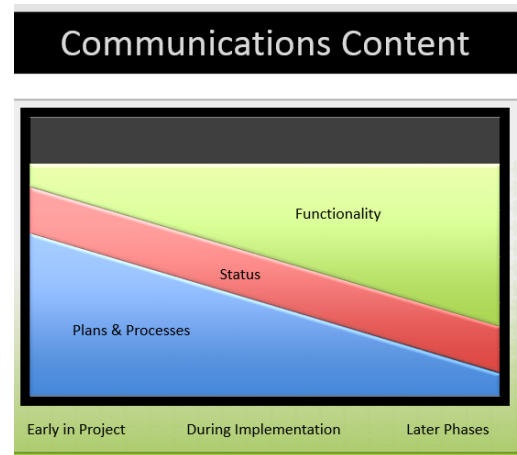
Top 10 Best Practices by Role

Interviews conducted for this paper provided a wealth of detailed information, perspectives, and project snapshots. What follows is the substance of the interviews, edited only for clarity and removal of jargon. The identified best practices are influenced by job function but share common themes, such as the need to manage change. The lists of best practices have been grouped based on perspectives from five different roles: subject matter expert, practitioner, project manager, consultant, and information technology manager.

Best Practices from a Subject Matter Expert (SME) Perspective

The following section was written by a SME with 40 years of combined experience in law enforcement, public safety applications including CAD and Records systems, mobile data applications, geographic applications, Automatic Vehicle Location (AVL) systems, and data-sharing projects.

1. Start planning early. Learn all you can about change management by reading books or taking a class; talk to your peers as well for their lessons learned. Identify all stakeholders, both inside and outside the agency, and don't overlook the value of participation, involvement, or concern for the impact of change among these groups. Communicating with your stakeholder groups is vitally important.
2. Plan for strong, frequent, and targeted communications. Know your stakeholders and how to communicate with them using a variety of methods (e.g., status meetings, in-person briefings, video infomercials, email, ride-alongs, bulletin boards, status reports, social media, etc.) so that all stakeholder groups are kept informed. As indicated in the table to the right, the content of communications must change depending on where the project is in its lifecycle. To reinforce communications, provide stakeholders with three times the communication you think they need.
3. Devise a winning strategy. Be sure to make a compelling and urgent case for change (i.e., implementing data sharing) and how things will be better with this change. Have a defined end point and measure of success. Plan for the long haul; achieving fundamental change in an organization is at least a three- to five-year process.
4. Plan your approach to change. Assess time frame, extent of change, benefits, and resistance to change. Be able to articulate what is important and at stake. Remember that before you can get buy-in, people need to feel the problem and aren't going to consider anything until they are convinced there is a problem that truly needs to be addressed.



(Coincidentally, identifying and articulating the problem area will also help you prepare for grant applications.) Don't announce your go-live date, but, rather, announce the quarter/year you expect to go live. Having a firm date pressures you to meet the date and this often means cutting corners or simply missing the target completely, along with the associated perception of failure.

5. Deal with resistance or indifference, which is harder yet. Expect that there will be resistance to change and be prepared to manage it. It's far better to anticipate and deal with objections early than to spend your time putting out fires.
6. Assess your organizational culture. Don't expect that everyone's reaction will be even remotely like yours. Organizations usually have networks and coalitions of people, not visible on the formal organization chart, that help shape opinion and they can either accelerate or retard change. Ignoring these groups can result in actual resistance. Plan your messaging and communications accordingly.
7. Involve employees. Leaders must actively involve the people most effected by the change in the project selection, implementation, configuration, training, and after action assessments. Ensure that employees at all levels of the organization embrace the proposed changes.
8. Have committed sufficient resources and skills. Remember the DICE formula and the impact of the work on certain groups. Organizations often simply fail to commit the necessary time, people, and resources to making change work. Remember the dangers of a project taking too long –enthusiasm wanes and there is a real danger of other priorities emerging that take your project's resources and funding. Consider a phased approach to data sharing – a situational awareness data sharing followed by true bi-directional CAD-to-CAD or other data exchange.
9. Continue to publicize successes. This shows value to the stakeholders and positive feeling about the investment in the change. Small successes will create feelings of accomplishment and the drive to pursue the next goal. Those heavily involved in the data sharing project must remember that they see success that others do not, so be sure to communicate these successes frequently and over the long haul. Remember that the primary reason for data sharing is to save lives; all the other myriad benefits, while important, pale to this outcome. Publicize the large as well as the small.
10. Don't let up. If you declare victory too soon, the focus will be taken away from your efforts, and all traces of your hard work could soon disappear. People have a tendency to slip back to the old way of doing things. Remember that it takes a long time to institutionalize change so that it becomes a way of life. Publically praise the people who embrace the new way of sharing information so that others will want to do the same.

Best Practices from a Practitioner Perspective

The following section was written by an agency practitioner team leader from a county-wide implementation involving over 20 agencies. The practitioner's background includes field

experience as a paramedic, paramedic supervisor, police/fire dispatcher, and director of a county-wide services governance board. The practitioner holds NENA's Emergency Number Professional (ENP) certification as well as APCO's Registered Public Safety Leader (RPL) certificate, and is heavily involved with statewide legislative action.

1. Start planning your project by investigating possible solutions and capable vendors. Get product demonstrations and invite potential users of the interoperability system to the demos. This gets people involved and informed early in the process.
2. Don't underestimate the impact of politics. You have to communicate a lot with the right message to groups at all levels of the organization to get people accepting the project and its importance. There may be power-plays and egos involved regardless if the project is law enforcement or fire driven; sometimes it takes a long time to overcome this mindset. Keep at it, as your communities and your first responders deserve this life-saving technology.
3. Work on the governance early as well. This has to include standard operating procedures (SOPs) and memoranda of understanding (MOUs) specific to automated exchanges of information. Governance can be discussed when conducting your site surveys.
4. Allocate sufficient budget to handle the project as well as something for contingencies.
5. Gain consensus among departments for the business rules of data exchange. What people want to see, how they need to see it, when they want to see it is important. It also keeps them interested in the project and helps them experience ownership and empowerment.
6. You might want to start with a smaller subset and do a pilot (beta or proof-of-concept) installation.
7. Involve representatives from the information technology department early in the process, and make sure that there is sufficient staff to handle the extra workload.
8. Don't assume that if you build it that they will come. It is essential to have solid reasons for data sharing that will convince people that this is a good thing. That message is that it saves lives, and that is the most important message you can give. You have to identify all of the pros of the project for each stakeholder, spreading the correct word to the right players. You have to communicate a lot!
9. You also need to be flexible and understanding while still keeping the goal in sight. Don't give up your timeline and let the project drag out. People will find other priorities.
10. You have to publicize your successes and continue to do so. You can't assume that all agencies know about how the system worked to save a life, catch a burglar, or help solve a case. The public needs to hear about these successes too. Make the system part of your daily life so that users can't think of working without it.

Best Practices from Project Management Perspective

The following section was written by a project manager (PM) with more than 15 years of experience in data exchange and software development projects. The PM has a Master of Science in Computer Science, has been a PMI® Project Management Professional (PMP®), and has managed dozens of data sharing exchanges including a project sharing more than 30 million person records to 60,000 users nationwide.

1. Change management should not be an afterthought. Allocate a portion of the project budget to fund, plan, and build change management into your project. Think of it as the primary marketing campaign for your project. A fast food restaurant doesn't bring out a new burger without a marketing campaign and you shouldn't bring out a new project without a similar campaign.
2. Assume you have only one chance to get it right. With most users, this will be the case as they easily get discouraged with delays and mismanaged expectations. Get user buy-in as early and as often as possible.
3. Make sure you include representatives from all user groups. Missing user requirements can mean failure for your project.
4. Plan for and build into your schedule time for the improbable. Your schedule is too tight if any delay dooms your project to failure. If a key staff member or resource becomes unavailable, you will need time to replace them/it. Those unlikely risks you identify occur far too often.
5. Timing is everything. Plan your schedule so that change management activities do not occur when it is busy or staff is swamped. Otherwise you could be sabotaging the success of your project.
6. Think big and long term. Don't be afraid to ask your vendor if something is possible. If you don't ask, you will never know. With all the new technology and new processes, it might be.
7. Market the benefits. Users need to understand the benefits of the changes as they specifically relate to them as well as to the entire organization. Don't forget that peoples' reactions to changes often reflect how the changes are presented to them.
8. Evaluate a large-enough sample of data to be sure you have covered all possible data values. Communicate with your users and vendors to be sure that there are no data exchange surprises later when it will be costly to make changes.
9. Document, document, document! Have a project charter. Develop and maintain a communications plan. Formalize the data exchange goals and the data to be exchanged. You really can't take too many notes. Take minutes at all meetings, formal or informal. Tape the meetings if you can.

10. Don't expect to know everything at the beginning. Build a reserve into your project budget and schedule to handle needed changes that may be uncovered or revealed during the life of the project.

Best Practices from a Consultant Perspective

The following section was compiled by a consultant with more than 30 years of experience in project management and system engineering, with over 20 years in the public safety domain. He is a certified PMP and ENP. With expertise in public safety systems, he has provided consulting services in needs assessment, specification development, proposal evaluation, contract negotiations, implementation, and project management.

1. Obtain executive commitment. Top-down approval is critical to the success of the project. If the goals and objectives are clear, and management support is behind the project, the likelihood of success is increased.
2. Avoid extensive customization. The more customization that is performed on a new system or interface, the more risk that is introduced into the project, resulting in increased costs and longer implementation timeframes. Configuration, rather than customization, is preferred, but be sure that the requirements and outcomes are clearly defined.
3. Over communicate. Keeping everyone informed on the project status pays benefits in several ways. In addition to keeping the project team up to date, stakeholders, users, and management need to be aware of the status throughout the project. This is critical for user buy-in, and also allows for sharing of lessons learned throughout the project so that the same mistakes are not repeated.
4. Establish clear objectives. A successful project is the result of a clear goal. Clarity in the end result, the goals, and the objectives of the project increase the probability of success. It is important to know how to measure success in order to understand how you achieve your objectives, and when you have achieved them.
5. Avoid scope creep. One of the biggest challenges during project implementation is staying on task and avoiding scope creep. There may be numerous opportunities to add new features, but it is important to stay in scope and follow proper change order management procedures. Otherwise, the project cost and schedule will increase, and user satisfaction will suffer.
6. Involve users. Users who are involved in the project from the beginning are usually more satisfied with the end result. Involving users allows them to be actively involved in defining the requirements. Decisions made throughout the project should be communicated so that users understand why decisions were made. Allowing all levels of agency personnel to participate is important to project success.
7. Consider a phased implementation. A risk for any project is doing too much, too quickly. It is important to size the project appropriately, making sure to take on a manageable amount of work. The more complex the project, the greater the risk of failure. Successful

projects are frequently performed with an initial pilot or subset of functionality, testing a single system or interface first, learning from the process, and then expanding to include additional systems or interfaces only after the initial project has been successfully tested.

8. Have dedicated team/key personnel. Rarely is the staff required to perform the project able to be dedicated to the project. As a result, realistic timeframes and commitments must be established so that personnel can also perform their day job. Additional staffing is often needed, or else extended project schedules will be likely.
9. Agency and team cooperation. While it may be obvious that cooperation among team members is important, experience shows that cooperation between participating agencies and departments, both internal and external, is just as critical. The various skill sets that are vital to success need to work closely with the project team and the end users from all participating agencies.
10. Vendor cooperation. Data sharing projects imply cooperation between agencies, but also between vendors. If the project involves multiple solutions, there is a risk of proprietary information issues which must be overcome. Vendor issues and concerns will need to be addressed for the project to be successful.

Best Practices from an IT Perspective

This section was developed by an IT manager of a major city with over 40 years managing IT projects. Currently, his duties include supervision of a very large IT staff that supports city technology initiatives.

1. Obtain key stakeholder buy-in and active support up front.
2. Proper planning is critical, and needs to be performed jointly by the stakeholders and key project personnel, with IT included from the start. IT staff must understand the user's business and what the project seeks to accomplish.
3. Sufficient funding is needed to cover not only the scoped project, but should also include a contingency budget of 15-20%.
4. The importance of following a project management methodology cannot be overstated. This includes developing the appropriate documentation (project charter, project scope, risk assessment, communications plan, project justification worksheet, change control plan, quality control plan, and project schedule). Note that the change control plan refers to managing scope and contract change orders, and not the process of managing the user experience as an old system is replaced (traditional change management).
5. Develop scheduled assessments and sign offs. Have a process for stage gates and sign-offs that occur throughout the project. These include: documented customer requirements, functional requirements, and design documentation all with the appropriate signatures.
6. Adequate funding, time, and resources need to be committed to the project in advance.

7. Continued user involvement throughout the project is critical; users should be involved early.
8. Test plans and test cases for unit and system testing, created in collaboration with the customer and IT, are needed in order to adequately test and accept the system.
9. Develop a well-thought-out, realistic cutover plan. Include a cutover checklist and identify responsibilities and contingency plans.
10. After cutover, perform a post-cutover critique and document lessons learned.

Real World Situations for Best Practices Application

Now that we have seen the best practices as viewed from a variety of stakeholder perspectives, we can look at some real world situations and how things could have been done differently to make the project outcomes more successful.

Mini Case Study 1

This case study refers to lessons learned from a large regional project to share CAD data. The end goal of the project was to provide real-time situational awareness to all the participant agencies through the sharing of CAD data. Large implementations and projects inherently have different challenges and the resulting lessons-learned, while applicable to all projects, are critical for large-scale undertakings.

Project Challenges

- There was no governance put in place when the project was initiated and it became difficult to get all the agencies together as the project moved forward to make project and funding decisions.
- When the initial funding ran out, the project's future was in jeopardy as there were no plans made or no resources set aside to handle the ongoing maintenance costs of the system or any future enhancements that might be needed or desired.

Lessons Learned

A project manager noted the following lessons learned from this case:

- Having a governance agreement in place before the start of the project would have been incredibly helpful. The governance agreement could have addressed project leadership, project sustainability, and project administration.
- There was a great deal of publicizing success once the system was put in place but that was the only positive messaging that occurred. Stakeholder agencies and citizens did not get to hear about the value of the system and get involved in supporting it and the benefits that it brought to the region.

Mini Case Study 2

This case study refers to an effort that involved a large number of agencies and mutual-aid partners that wanted to share real-time CAD data for situational awareness.

Project Challenges

- The project leaders did not have the commitment of all the agency leaders from the project outset.
- The project's value was not proven to all agency participants. Because they did not buy into the benefits, mid- and top-level leadership did not vocally support the project, finding other priorities that took precedence.

Lessons Learned

A project leader noted the following lessons learned from this case:

- There should have been an agreed-upon timeline up front. In addition, governance of the project was not addressed early enough in the process, and it would have helped garner more support for the project.
- Project leaders should have done a better job in socializing the benefits of the project all around.
- The project leaders and staff looked at the project in terms of technical issues but failed to see that in the larger scheme, there were politics involved across the many stakeholder agencies that were participating. These should have been anticipated and there should have been a plan of action to deal with them.
- There was not enough messaging and communication throughout the project, which was realized in hindsight and not during the project timeframes.

Mini Case Study 3

This case study refers to a CAD-to CAD data sharing initiative that was plagued with repeated delays.

Project Challenges

- In this proof of concept project there were conflicting agendas, poorly written requirements, a poorly written Statement of Work, and unrealistic expectations by stakeholders.
- There was also a failure to have clear goals that defined success and identified the end point of the project.

- Commitment was lacking among agency participants as well as the vendor to dedicate the people needed to get the job done in a timely manner.

Lessons Learned

A project leader noted the following lessons learned from this case:

- There was an overall need for improved communications.
- The project leadership would have benefitted greatly by talking to others that have gone through a similar type of project in the past.
- The project team should have identified misperceptions much earlier in the process and addressed them – a lot of time was wasted from what is now known as scope creep.

Conclusions

The objective of this paper is to provide practitioners with additional information about best practices in data sharing projects and how they can increase the odds that their data sharing projects will be successful. A critical component of this is managing employee resistance or apathy to change. The interviews conducted for this paper revealed that despite a plethora of experienced, hard-working, dedicated and savvy professionals each project had challenges. It was determined the projects could have gone more smoothly had change management concepts been incorporated early in the planning.

Data sharing projects can be implemented using a variety of models or architectures and the change to the new environment can have a widely varying impact on the users. To be successful, change management must be part of the planning and must begin early in the process. Waiting to begin change management planning until after procurement contracts are signed is a mistake as proven by the research and lessons learned upon which this paper is based.

In addition to good change management practices, having strong governance agreements in place is also key to project success. Not only does this provide leadership structure and address sustainability, it also reinforces the desired goal and helps to create the new culture of sharing.

The combination of a strong governance plan coupled with good change management practices help to ensure a successful project implementation. Together they may be the two most important best practices in data sharing.

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