DOWNLOAD PDF IMPLEMENTATION CHALLENGE

Chapter 1 : Implementation | The Seven Challenges

Change affects every business at some point. They may range from minor staff restructuring to merging or acquiring another company. While the changes may be necessary for the future of the company.

Links As stated on their main website , the "DIMACS Implementation Challenges address questions of determining realistic algorithm performance where worst case analysis is overly pessimistic and probabilistic models are too unrealistic: Graph partitioning and graph clustering are among the aforementioned questions or problem areas where theoretical and practical results deviate significantly from each other, so that experimental outcomes are of particular interest. Graph Partitioning and Graph Clustering. Problem Motivation Graph partitioning and graph clustering are ubiquitous subtasks in many application areas. Generally speaking, both techniques aim at the identification of vertex subsets with many internal and few external edges. To name only a few, problems addressed by graph partitioning and graph clustering algorithms are: What are the communities within an online social network? How do I speed up a numerical simulation by mapping it efficiently onto a parallel computer? How must components be organized on a computer chip such that they can communicate efficiently with each other? What are the segments of a digital image? Which functions are certain genes most likely responsible for? Challenge Goals One goal of this Challenge is to create a reproducible picture of the state-of-the-art in the area of graph partitioning GP and graph clustering GC algorithms. To this end we are identifying a standard set of benchmark instances and generators. Moreover, after initiating a discussion with the community, we would like to establish the most appropriate problem formulations and objective functions for a variety of applications. Another goal is to enable current researchers to compare their codes with each other, in hopes of identifying the most effective algorithmic innovations that have been proposed. The final goal is to publish proceedings containing results presented at the Challenge workshop, and a book containing the best of the proceedings papers. Problems Addressed The precise problem formulations can be found in the document describing scoring rules and objective functions. The descriptions below served as a starting point for the problem definitions. The problem is known to be NP-hard. Other important variations of this problem exist. They are often subsumed under the term graph partitioning as well. In the Challenge we consider two objective functions, see the scoring rules and objective functions. Clustering is an important tool for investigating the structural properties of data. Generally speaking, clustering refers to the grouping of objects such that objects in the same cluster are more similar to each other than to objects of different clusters. The similarity measure depends on the underlying application. Clustering graphs usually refers to the identification of vertex subsets clusters that have significantly more internal edges to vertices of the same cluster than external ones to vertices of another cluster. News Jan 23, The Challenge book will be published by AMS soon. The challenge results are online. New graph category Star Mixtures. Most talk slides are available. Final workshop program online! The challenge instances have been announced. Tim Mattson Intel has joined the advisory board. Dec 1 and 12, Updated workshop registration information, new graphs in category numerical! Thank you for your submissions! New details on workshop times available! Updated workshop and venue information. New graph category Redistricting. The new archive size is about 35GB. Minor update of objective functions to handle some pathological cases. The scoring rules and objective functions are now available! Maintenance in the testbed archive nearly completed. Some additions and descriptions are still expected. Changes of and additions to the testbed data from this point on will be announced on the mailing list. A few changes in the directory structure and file names have been made to improve consistency. All testbed files approx. Note that the webserver creates a few additional HTML files mostly directory listings. The website is published at its permanent location.

Chapter 2 : Common Implementation Challenges

Three Challenges to Implementation: What You Need to Know by Datameer on Feb 26, Big data is proving to be a powerful tool, but many companies face challenges or outright problems when implementing big data programs.

This article has been cited by other articles in PMC. Implementation of interventions designed to improve the quality of medical care often proceeds differently from what is planned. Improving existing conceptual models to better understand the sources of these differences can help future projects avoid these pitfalls and achieve desired effectiveness. To inform an adaptation of an existing theoretical model, we examined unanticipated changes that occurred in an intervention designed to improve reporting of adjuvant therapies for breast cancer patients at a large, urban academic medical center. Guided by the complex innovation implementation conceptual framework, our study team observed and evaluated the implementation of an intervention designed to improve reporting to a tumor registry. Findings were assessed against the conceptual framework to identify boundary conditions and modifications that could improve implementation effectiveness. The intervention successfully increased identification of the managing medical oncologist and treatment reporting. We present a revised conceptual model that incorporates the sources of these unanticipated challenges. This report of our experience highlights the importance of monitoring implementation over time and accounting for changes that affect both implementation and measurement of intervention impact. In this article, we use our study to examine the challenges of implementation research in health care, and our experience can help future implementation efforts. Implementation research, intervention study, breast cancer therapies, innovation implementation, case study, tumor registries Introduction Implementation research is a burgeoning area of scientific inquiry focused on examining the process and contextual factors that affect the ability for a proven intervention to make evidence-based practices part of routine health care workflow. Implementation research has been applied successfully in a variety of settings to improve the uptake of proven interventions, ultimately benefiting care coordination, teamwork, quality reporting, and guideline adherence. This discrepancy contributes to the wide gap between findings that are expected based on the results of scientific studies and actual findings that result from the implementation of an innovation into clinical or organizational practice. For example, the consolidated framework of implementation research CFIR acknowledges the role of anticipated change in the internal organizational context as a result of the intervention itself by predicting this co-evolution and suggesting the need for continuous re-evaluation of the internal environment. While several models encourage ongoing assessment and feedback, flexible models that directly address sources of uncertainty, both within and beyond organizational boundaries, may be helpful to improve implementation efforts and associated research. In an effort to improve existing theory in order to incorporate unanticipated environmental changes, we examined the implementation process of an intervention designed as part of a larger study designed with the goal of improving reporting for the use of breast cancer adjuvant therapies. Adjuvant cancer therapy is often delivered by clinicians outside the hospitals that run the tumor registry, resulting in poor accuracy and under-reporting of adjuvant therapy use. New contribution Building on prior research, we present this case study highlighting challenges to both intervention implementation and conducting implementation research. Framed by an established model of innovation implementation, we examined the implementation process for our evidence-based intervention to improve our understanding of implementation in health care delivery and to inform future efforts to implement innovative practices in health care organizations. In particular, we focus on how an established model was inadequately prepared to respond to unexpected events. Our findings provide important guidance about the process of studying implementation, including insights about critical issues to address when evaluating intervention effectiveness and impact. Conceptual framework We used the complex innovation implementation framework developed by Helfrich et al. Within this framework, complex innovations are those that are perceived as new by the adopter and require active coordinated use by multiple members to achieve organizational benefits. At the outset, we felt that this conceptual framework was appropriate for our study because of the nature of our interventionâ€”an innovation that required coordinated use by multiple organizational members and involved the interplay of key organizational factors. Using this conceptual model, the implementation process is defined as the transition period following the decision to adopt the intervention and during which users bring the innovation into sustained use. Implementation effectiveness is then defined as distinct from the effectiveness of the intervention itself and refers to the consistency and quality of collective innovation use. In practice, the assessment of the implementation effectiveness construct throughout various stages of the intervention can permit evaluation, for example, enabling determination of whether a failed innovation was the result of poor implementation or whether the innovation was successfully implemented but was nonetheless ineffective. The innovation implementation model frames effective implementation as a function of management support and resource availability mediated by organizational policies and practices and by the implementation climate within the organization. Also important is the concept of organizational climate, which refers to the shared perception that implementation of the innovation is a major organizational priority that is promoted, supported, and rewarded by the organization. We were interested in examining the implementation process for our planned intervention in order to gain further insight about challenges and facilitators of implementation in this context to identify boundary conditions of the implementation framework and to inform future efforts to implement innovative practices in health care organizations. Methods Study setting This study was conducted in a large, urban AMC that serves a high volume of breast cancer patients with its affiliated providers, including 23 surgical oncologists, 19 medical oncologists, and 3 radiation oncologists. Three-quarters of the oncologists who treat breast cancer patients were based in the community as part of solo and group practices, and one-quarter delivered care through faculty practices and resident clinics within the hospital. Intervention development Research team members conducted in-person interviews with 31 key informants affiliated with the AMC. Interviewees included hospital- and community-based oncologists and hospital cancer leaders recruited for participation based on their affiliation with the medical center. We used different versions of a semi-structured interview guideâ€”clinical, non-clinical, and leadershipâ€”to conduct interviews. Study participants were asked about awareness of and willingness to report patient information to a centralized tumor registry TR to inform an intervention being designed to improve reporting of receipt of adjuvant therapies for breast cancer patients. Recordings were transcribed verbatim. Interviews were coded using both a priori and emergent codes using the constant comparative method of qualitative data analysis based on grounded theory development. A preliminary coding dictionary was first developed based on broad topics from the key informant interview guide. After interviews were conducted and analyzed, research team members convened a panel including one surgical and two medical community-based oncologists; one hospital radiation oncologist; the hospital tumor registrar, her assistant, and her administrator; and the deputy chief medical officer to discuss the findings and opportunities to improve tracking and feedback. This panel conducted a solution-focused exercise based on the barriers and facilitators identified from the key informant interviews to develop an intervention to improve communication between the tumor registrar and oncologists. Implementation process evaluation Throughout the implementation process for the intervention described above, we monitored concurrent changes in the practice environment that could threaten the validity of the intervention, taking notes as a study team. We also collected information about our observations of the implementation process, including soliciting feedback through brief interviews from study participants involved in implementing and evaluating the intervention. Regular discussions among investigators regarding these notes and observations enabled us to form consensus about the results we present. The consensus issues identified from these notes and observations concerning the challenges faced during the implementation process were evaluated against the domains of the complex innovations implementation framework. Findings that did not fit within the existing domains were classified based on the environmental influential factors. Results Intervention The results from the intervention are not the primary subject of this article and are reported elsewhere in detail. During the intervention period, 25 breast cancer patients that needed follow-up treatment and listed the participating surgical oncologist as their managing physician were identified from pathology. Implementation process evaluation Despite the improvements attributable to the intervention, our monitoring and assessment of the implementation process revealed both internal and external threats to the process of implementing our treatment reporting intervention. While internal threats to implementation had largely been anticipated and were consistent with our expectations about the implementation process, we also encountered external threats to implementation that created challenges that impacted both implementation and intervention effectiveness. We next discuss these threats in the context of the complex innovation implementation framework. While we had identified an innovation champion at the outset of the intervention project, this individual subsequently left the institution and no clear successor was identified after her departure. As a result, the implementation climate changed due to inconsistent support for the intervention.

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Chapter 3 : Implementation Challenges

Common Implementation Challenges There are a range of different issues and challenges that need to be addressed for successful program implementation. Some of these challenges are particularly unique to rural communities.

View more Implementation Challenges Rural services integration programs may experience implementation challenges or require mid-course corrections. Below are a few challenges that existing rural services integration programs have encountered. For additional information on challenges that rural programs may encounter, see Common Implementation Challenges in the Rural Community Health Toolkit. Space Some services integration programs require dedicated space to carry out program activities. In particular, co-location and one-stop shop models require partnering agencies to share the same office or facility. Startup costs for program planners can be substantial, especially if partnering agencies are required to break existing long-term leases. Differences in Priorities Services integration programs often require collaboration across different staff members, partners, agencies, organizations, and other stakeholders. Rural communities should clearly define the goals of the services integration program before implementation to ensure that all partners have the same priorities. In order to identify key priorities, rural communities could consider conducting a community needs assessment. Legal Issues Some federal and state laws restrict the sharing of patient or client information between different organizations. In particular, rural communities developing healthcare integration programs need to comply with health information privacy and security rules. Program leaders may need to establish business associate agreements with partnering organizations and develop confidentiality policies for program staff. Another potential challenge, especially for models integrating the services of clinical providers, can be satisfying the various licensing requirements of clinical providers that are licensed by different governing bodies. This challenge can be mitigated by developing a single treatment protocol in collaboration with the clinical team at the outset of the program. Reimbursement Rural services integration programs have found that one of the greatest challenges they face is coordinating billing for different services provided by different partners. One rural services integration program found that it was helpful to begin the program by billing for services through individual provider streams e. Confidentiality Confidentiality can be especially critical for program staff who are working with victims of abuse, where disclosure of confidential information could put the safety of survivors and family members at risk. Programs that implement Co-location of Child and Family Services models should ensure that clients have a private space to speak with advocates in order to maintain confidentiality. Program staff also need to be trained on mandatory reporting laws, which vary from state to state. Liability A risk management plan may help to mitigate liability issues, such as medical malpractice claims, and identify staff training needs, such as safety training, within certain services integration programs. Transportation Transportation in rural communities is often limited, making it difficult for individuals to access health and human services. Barriers to reliable transportation include lack of public transit, costs gas, insurance, vehicle, fare and harsh weather conditions icy roads, flooding. Long distances to healthcare services compound these barriers. Services integration programs can minimize the need for transportation by offering one-stop shops or co-locating several services in one facility in a centralized location in the community. To address these barriers, some services integration may elect to provide transportation services for residents. Residents who meet eligibility requirements can request transport to the clinic. Community health workers or services integration program staff may also be able to offer transportation assistance. This online, searchable directory helps individuals find public services for aging populations in their community. In addition to providing transportation services, some organizations address transportation barriers by bringing services to individuals through mobile units. Rural residents can visit the Mobile CSO to apply for cash, food, and child care subsidy benefits, as well as certain Medicaid and Medicare programs. Teleconferencing is another method used for overcoming transportation barriers. Healthcare providers can teleconference with individuals to address common health issues either in the home or in a nearby site such as a school. Stigma In small and rural communities, there may be social stigma associated with seeking health and human services. Rural services integration programs should carefully consider whether their programs reduce or increase stigma associated with seeking health and human services. One rural services integration program found that families were reluctant to seek early childhood intervention services because these services were located in the same complex as an adult day care center for individuals with behavioral and physical disabilities. This program decided to offer early childhood intervention services in a new location through a different partnership in order to increase participation. Services integration programs that may help to reduce stigma include the one-stop shop model , family resource centers , and school-linked services model. Document This desk guide has a section on survivor confidentiality in the context of co-located domestic violence services. Was the information on this page useful?

Chapter 4 : Barriers & Challenges to Change Implementation | calendrierdelascience.com

- There are many challenges in implementing and sustaining operational excellence. Here are some common implementation challenges. Fear of headcount reduction and job losses. Many employees view operational excellence, especially lean, as a means by management to lean out the organization, resulting in job cuts. Rightly or wrongly, that's the view and fear. Senior management.

Conclusion Introduction You may well be considering deploying a service-oriented architecture across your enterprise. In any such deployment, there are complex challenges along the wayâ€"including ones unique to your industry and company. Service-oriented architectures are an important new paradigm that supports modularized implementation of solutions within a middle tier. These architectures are particularly applicable when multiple applications running on varied technologies and platforms have to communicate with each other. Companies must first gear up and work towards the progressive construction of the components and services involved. A road map and company-specific standards are key prerequisitesâ€"ensuring a systematic implementation of such an architecture enterprise wide. This article offers different approaches for companies to use to address various implementation-related challenges. Architectural Components Figure 1 shows the basic components of a service-oriented architecture. The components of a service-oriented architecture include: A service provider is a component or set of components that execute a business function in a stateless fashion, accepting predefined inputs and outputs. A service consumer is a set of components interested in using one or more of the services provided by service providers. A service repository contains the descriptions of the services. Service providers register their services in this repository and service consumers access the repository to discover the services being provided. Service-oriented architectural components Challenges While implementing a service-oriented architecture, a company faces up to eight key challenges. These challenges align to the steps in a typical project deployment plan: What is a service? What is the business functionality to be provided by a given service? What is the optimal granularity of the service? Where should a service be located within the enterprise? How should services be grouped together into logical domains? How is existing functionality within legacy mainframe systems to be re-engineered or wrapped into reusable services? How are composite services to be orchestrated? How will the enterprise exercise governance processes to administer and maintain services? Service messaging standards adoption. How will the enterprise adopt a given standard consistently? Representative real-life examples are included, wherever applicable. Service Identification Challenge Properly identifying services and determining corresponding service providers is a critical first step in architecting a service-oriented solution. Approaches There are two ways to address this challenge; service rationalization and service consolidation. Service rationalization Service rationalization involves a careful analysis of all the systems and applications providing the given business function. Through service rationalization, business functionality supported by the least frequently accessed systems can be implemented within those that are more frequently accessed. By streamlining systems in this way, we can enforce more consistent delivery of services. Account profile service rationalization Figure 2 provides an example of service rationalization. The information received through the Account Profile business function is required by multiple front-ending applications such as online banking, CRM and VRU applications. The customer and account repository is the system of record that supports the Account Profile business function. Depending on the nature of the front-end application invoking this business function, different subsets of the account profile are returned. In this example, the enterprise is increasing online and VRU access for its customers while decreasing use of a CRM application that requires significant human interaction. As customers adapt rapidly to self-service channels, the percentage of access through the CRM application steadily decreases. As part of the service rationalization process, the VRU- and online banking-based Account Profile services are augmented to implement the CRM Account Profile business function, as well. Thus, rationalization eliminates the CRM Account Profile service and the definition of two services supporting it. Service consolidation Service consolidation involves the redefinition of all the service instances into a consolidated version that supports the superset of all the interfaces exposed by the individual instances. The redefined and consolidated service is provided by all the individual applications consistently. Product catalog service consolidation Figure 3 illustrates a product catalog repository accessed by three separate services. These services are dedicated to retrieving predefined subsets of the information available about a product. This service contains all the information segments employed by the individual services prior to consolidation. Service consolidation is thus an effective way to streamline multiple services supporting the same business function. Service Location Challenge Services usually operate on a specific set of business entities that are resident within a given system of record. This system of record is an ideal location for the service to execute. However, distributed architectural solutions can result in business data being spread across multiple applications and can generate multiple instances of the system of record for the same business entity. Data synchronization between the two systems becomes a key requirement. Where would the service be located in such scenarios? Approaches There are three ways to solve this challenge; content-based routing, service repository-based routing, and back-end replication. Content-based routing This approach routes the incoming request for this service to the appropriate system of record. Such a solution supports location transparency for service consumers: Both systems of record support an instance of the service and both service instances serve as logical entry points for the given request. Content-based routing Figure 4 illustrates an example of content-based routing. In this example, information about customers is segregated by region. Customers belonging to a given region are stored in the repository in the data center located within that region. However, service consumers located within either region may access this information. Upon receiving the incoming request, the Customer Profile service executes a business rule that determines the specific repository where the information about the given customer is available. Then, the Customer Profile service routes the given request to the appropriate region. Service repository-based routing A variation of the content-based routing approach described above, the service repository-based routing approach is shown in Figure 5. While the Customer Profile service executes the same business rule it does in the content-based routing approach, it leverages the information in the service repository to direct the request to the appropriate region. This approach makes it easier to change the routing logic, if necessary. Requests can be redirected to a different region simply by updating the information in the service repositoryâ€”without changing the business rules within the Customer Profile service itself. Service repository-based routing Back-end replication This approach leverages intrinsic inter-application connection capabilities to access the information from the physical repository that contains the required information. Thus, both instances of the system of record function as a logical entry point to access the information distributed across both systems. The service can be executed on either system. The physical location of the data being operated upon is transparent to the service itself. Figure 6 illustrates a scenario for back-end replication. In the event that information from the other regional repository is required, the intrinsic data replication capabilities of the technology behind the data repository are employed to fetch the relevant data. Back-end replication Service Domain Definition Challenge Classifying services into logical domains simplifies the architecture by reducing the number of components to be addressed. Such groupings can be leveraged for multiple architectural reasons such as load balancing, access control, proxy simulation, and vertical or horizontal partitioning of business logic. What would be a good logical grouping of service domains? Approaches We can adopt multiple approaches to define service domains. Table 1 shows a sample distribution of the applications and platforms across different business units. This example will be used to define the salient characteristics of each approach discussed in this section. Sample application distribution Business Unit.

Chapter 5 : 6 Challenges of Implementing an Enterprise Content Management System

Implementation Challenges Rural services integration programs may experience implementation challenges or require mid-course corrections. Below are a few challenges that existing rural services integration programs have encountered.

Image Courtesy of Precision Dynamics Corp. The risks and advantages offered by barcodes have been well known for a decade or more Leape et al. The concept of barcodes goes back to , and the first scanner was installed in a Cincinnati Kroger grocery store in Reynolds, n. In spite of the fact that the needs are well understood and the technology mature, barcode technology adoption in hospitals has yet to meet the expectation of many in the industry. Future adoption forecasted by the study was mixed. Barcode adoption was surveyed as a component of technology adoption, again over the next 2 years. Barcode adoption came in last out of nine technologies. This data tells us first that intentions always exceed actual adoption. The data are also indicative of continued interest in applying the benefits of barcode technology to medication administration and other applications in healthcare. Barriers to Adoption Given the documented patient safety need and potential benefits of barcodes, why is adoption so slow? Four barriers to BPOC adoption have held back barcode adoption. Broad adoption is dependent on: Overcoming a common causality dilemma. Mastering the highly complex workflows that are the target for some high-profile BPOC applications. Recognizing and accommodating the suitability of barcoding for specific applications or tasks. Overcoming the absence of interoperability and coexistence of barcode technology across applications. Vendors have little incentive to shoulder the cost of adopting barcodes if customers have no scanners with which to read them. Likewise, providers have no reason to buy scanners when there are no barcodes to be read. In such situations it is difficult for all the parties to agree on details such as what data is to be encoded and how. Justifying adoption costs is difficult for any individual link in the chain, because it is not known when or if others will adopt. The FDA issued a rule mandating barcodes on drugs in with an update in Also in , the FDA published a rule specifying barcode requirements for blood products. Most likely barcoding, as well as other technologies, will be adopted to support the UDI application. External to the healthcare industry, the supply chain industry has adopted numerous UDI product labeling standards, many based on the GS1 standards www. Such a poor response from the market suggests that factors beyond causality are hindering the adoption of barcode technology. Complex Workflows Barcodes have been widely adopted in hospitals for certain applications for many years. Many of these applications, like barcode medication administration systems BCMA for pills, shots, and drops, entail complex and variable workflows. Awareness of nursing workflow complexity is low among many. Farrell noted recent studies to back up this contention. Most of the harmful technology-related errors involved mislabeled barcodes on medications 5 percent , information management systems 2 percent , and unclear or confusing computer screen displays 1. The report, based partially on site visits to eight U. Many of the systems criticized by the committee that produced the report made extensive use of barcode technology. The committee moved beyond product design to criticize how these systems are purchased and implemented. The report noted that while many healthcare institutions spend considerable money on IT, implementation is done in a way that makes even small changes hard to introduce. A total of 15 workarounds were identified along with 31 different causes. According to Farrell, the paper offers product developers and prospective buyers the best description yet of pitfalls and problems to avoid. Vendors have underestimated the challenges of capturing and automating workflow, as have most hospitals. Many conclusions can be drawn from these reports, but the inescapable fact is that some applications utilizing BPOC have not met their promise. Over time, better product designs and implementation methodologies will evolve. In spite of this, it seems that the technology has been adopted in an almost indiscriminate manner. A review of the market suggests that BPOC is more suited for some applications than others. Barcode technology has been in use in hospitals for many years. Common barcode applications are focused solutions to problems on the departmental level, rather than at an enterprise scale. These established applications targeted simple workflows with limited variability. The clinical lab and pathology departments frequently use barcodes to track specimens and convey configuration data to analyzers in a machine-readable format. Many of these barcodes are then used within various departments for workflows of modest complexity. More recently, barcodes have been adopted for point-of-care diagnostic testing POCT. He reports that hospitals using barcodes and HL7 admission, discharge, and transfer ADT feeds have achieved positive identification rates of Clearly BPOC can be a potent workflow automation tool. Closed loop medication administration systems for smart pumps is another area where barcode technology has been the default automatic identification technology. Development on these systems started almost 10 years ago. Like BCMA for pills, shots, and drops, workflows associated with administering infused therapies are very complex. Unlike BCMA, smart pump medication administration requires considerable systems integration and implementation of computerized provider order entry CPOE and other advanced electronic medical record subsystems. The current state of smart pump market is that most hospitals have adopted infusion pumps with drug error recovery systems DERS. Many of these pumps are network enabled, and include barcode technology for nurse and patient identification for DERS reporting, known generally as continuous quality improvement CQI reporting. The value of CQI data is greatly enhanced when it is associated with a particular clinician and patient. In spite of the increased value, fewer than a handful of hospitals in the U. Sparnon, personal communication, June Several issues have hampered the use of barcodes with smart pumps. Current smart pump systems offer no direct benefit to the nurse for capturing caregiver and patient ID for more meaningful CQI data. Unlike the use of barcode technology for point-of-care solutions in the clinical lab and pathology, perhaps BPOC is not the appropriate technology for other applications. Interoperability and Coexistence When any technology such as barcoding is utilized by multiple vendors in the same market, problems arise. This is especially true in markets where the common product strategy is to create proprietary end-to-end solutions. The point-of-care in hospitals is one such market, where a plethora of healthcare IT and medical device manufacturers are creating solutions targeted at the same end user: To reduce product development costs and shorten time to market, vendors frequently make use of commonly available technologies. The consequence of this approach forces hospitals to buy duplicate equipment and to struggle with getting their systems to support the most basic compatibilities such as a common barcode symbology. For example, consider a hospital that has installed Sensitron for vital signs capture, uses B. While some of these scanners may be identical, others must be dedicated to their system. It is little wonder that barcode adoption has lagged when hospitals must struggle with: Hospitals hesitate to implement BPOC for one vendor without having considered the implications of the other BPOC applications destined to be implemented. This situation is the result of the broad adoption of BPOC in the absence of coordination among vendors deploying systems utilizing barcodes at the point of care. This lack of coordination contrasts with other industries where consortiums or alliances of some kind normalize the adoption and implementation of technology across vendors. Similar organizations exist in most other industries. These organizations start with industry standards, develop implementation guidelines, and provide test and certification to ensure cross-vendor interoperability and coexistence. The adoption of BPOC will be hobbled until there is some means to minimize barcode reader duplication and normalize barcode workflows across all products at the point of care. To date, the only alliance of this type in healthcare is the Continua Health Alliance, founded mostly by companies from outside of healthcare. The IHE may offer hope as a suitable vehicle for resolving barcoding issues but has made little progress to date. Further, the IHE is challenged because the current structure of technical frameworks necessitates solving barcode problems across multiple workgroups. Perhaps none of these organizations are well suited to the task at hand, given the long standing need and little progress in rationalizing barcode use in healthcare. There are a variety of other methods to establish identity, from the long established pick list on a medical device or computing device to passive RFID tags. Buyers must assess their workflow requirements before buying. A careful assessment of workflow at the point of care is not a trivial task, yet the proliferation of adoption problems like the workarounds reported by Koppel et al. The industry as a whole, both healthcare providers and vendors, should adopt formal methods for capturing workflow. Buyers need workflow data in order to evaluate potential solutions. Vendors need workflow data that directly translates into specifications, before systems will reliably automate workflows in customer sites. Finally, all stakeholders in the point of care must work together to ensure sufficient interoperability and coexistence among various products and systems. Whether this is realized by existing organizations like the IHE, or is the result of new alliances or consortiums, the promise of BPOC will remain unrealized until interoperability and coexistence are achieved. During more than 20 years in healthcare, he has pursued a career in hospital connectivity. Through it all, Gee gained an expertise in workflow throughout the hospital, required technologies, and enterprise applications. He may be contacted at tim medicalconnectivity. Incidence of adverse and negligence in hospitalized patients. New England Journal of Medicine, , Bar code label requirements â€" Questions and answers. Safely implementing health information and converging technologies. Sentinel Event Alert Workarounds to barcode mediation administration systems: Their occurrences, causes, and threats to patient safety. Journal of the American Medical Informatics Association, 15, Systems analysis of adverse drug events.

Chapter 6 : 10th DIMACS Implementation Challenge

Discusses various approaches to solving the eight key challenges companies face when implementing a service-oriented architecture, and gives examples of EDS' own experience with clients.

April 4, RFA: A cost sharing of a minimum of 50 percent of total costs is a condition of award for all recipients of funding from this solicitation. Cost sharing refers to a situation where the recipient shares in the costs of the project. Cost sharing is a requirement for funding because projects funded under this solicitation will have a greater likelihood of success if the recipient contributes to the costs of the project. Eligible institutions must demonstrate evidence of commitment to reducing the potential for harm from preventable medical error and improving patient safety through the identification of risks and hazards and eliminating them by implementing safe practices. Two type of projects are requested in the RFA with approximately half the total number of awards being funded in each category. Risk assessment and intervention planning projects are intended for organizations that are in process of identifying risk areas. These planning projects are for those identified areas that represent a significant threat to patient safety for which further assessments are needed to identify the specific target risks and hazards with the risk area to be eliminated or reduced and to make the process of care safer. The use of established assessment and analytic approaches, including root cause analysis, process mapping, failure mode and effects analysis FMEA , and probabilistic risk assessment PRA , are strongly suggested. Once specific target risks are identified, then intervention strategies for the target risks can be designed. These risk assessment planning grants will be no more than 12 months in duration. Patient Safety Implementation projects - Organizations and provider networks wishing to introduce safe practices, to minimize or eliminate the potential for risks of injury or harm to patients from the process of care, may submit a second type of application for implementation project. Organizations are expected to identify the target risk that is to be addressed by the safe practice, develop a complete implementation plan for introducing the safe practice intervention, and provide an evaluation plan to determine whether the safe practice did, indeed, eliminate the target risk, was the practice adopted by health care professions within the organization and what was the impact of the practice on the process of care. The implementation projects can be up to 24 months in duration. Currently funded AHRQ safety improvement projects that are poised to build upon and expand initial results to additional settings or populations are also eligible to apply under this RFA.. All implementation projects are expected to identify anticipated outcomes prospectively. AHRQ seeks to support projects that can be generalized to other settings for use by those who wish to assess risks and devise intervention strategies, or adopt safe practices to eliminate or minimize the risk of harm to patients from the process of care. These cooperative agreements are intended to capitalize on advances in knowledge about medical errors and translate established strategies to reduce medical errors into the adoption of proven safe practices. This goal can be accomplished by removing or minimizing hazards, which are known to increase the risk of injury to patients. Errors can include problems in practice, products, procedures, and systems. In health care, sharp end individuals administer care to patients. Their actions and decisions may result in active failures. These underlying conditions may predispose sharp end individuals to fail. Their actions and decisions may result in latent conditions. Examples of such decisions include those related to staffing and resource allocation. Lack of harm may be due to the robust nature of human physiology or pure luck. An example of such, a no-harm event would be the issuing of an ABO incompatible unit of blood for a patient, but the unit was not transfused and was returned to the blood bank. Information may be collected from individuals familiar with the process of care in organizations about conditions that are highly likely to cause an injury to a patient or patients. The majority of these errors are a result of systemic problems rather than poor performance by individual providers. Although, the United States provides some of the best health care in the world, the number of patients that are being harmed as a result of the process of health care is unacceptably high. The goals of these actions are to: Assessment and Evaluation o Identify the causes of preventable errors and the hazards that increase the risk of injury to patients. Patient Safety Improvement o Implement patient safety practices that eliminate known hazards and reduce the risk of injury to patients. Sustaining Improvements o

Maintain vigilance to ensure that a safe environment continues and positive safety cultures are maintained. AHRQ has approached improving patient safety through an integrated set of activities to address each of the stages of this model. Examples of these activities include the design and testing of best practices for reducing errors in multiple settings of care; developing the science base to inform reduction of medical error, as well as improving provider training in the reduction of errors; using advances in information technology to translate proven effective strategies into widespread practice; and building the capacity to further reduce the opportunity for errors in the future. AHRQ and its partner members of the PSTF have also been supporting ways to identify risk and hazards with various reporting systems and the development of patient safety and quality indicators to identify, evaluate, and monitor the incidence of adverse events using readily available administrative data. The majority of research and programmatic efforts are currently at stage one in the epidemic cycle, with the primary focus on the identification of risks and hazards to patients from iatrogenic injury and building the capacity for patient safety research. This initiative is intended to enhance efforts in improving patient safety stage two. The IOM report "To Error is Human" addressed much of its recommendations to what should be done at a national level by the government and other regulatory bodies to deal with issues at stage one of the epidemic model. However, its last recommendation was directed at implementing safety systems in heath care organizations. Based on insights from other industries, patient safety programs should: There are two main classifications of error i. His classification begins with knowledge-based decision making at the top of a hierarchy of actions or decisions. Knowledge-based behavior involves the conscious application of existing knowledge to manage novel situations. In contrast, rule-based decision making involves the application of existing rules or schemes to manage familiar situations. Prolonged, active processing is not required, simply the selection and application of the appropriate rule. Latent conditions, or system failures are the delayed consequences of technical design or organizational issues and decisions. Accidents as defined in the human-error literature and adverse events happen when latent conditions or system failures, combine with active human failures. Reason stresses studying the latent conditions because they may well set up humans for failure. Thus, safety researchers stress the importance of examining both active human failures and looking at underlying latent conditions and system issues that contribute to the potential for injury and harm. Van der Schaaf See ref. In the case of patient safety, there is concern that risks and hazards that are embedded within the structure and process of care have the potential for causing injury and or harm to patients. Within the process of care is the potential for active failure from individual actions of members of the health care team. Thus, to achieve the outcome of safe care, both the structure and processes of care must be modified before these latent conditions become active and cause unintended and avoidable patient harm. Van der Schaaf has indicated that accurate identification of the root causes of events must precede identification and implementation of appropriate interventions. Moreover, solutions for active failures such as skill based failures are different from rule-based, and are associated with different latent failures in organizational process and structure. The use of sophisticated risk assessment techniques including process mapping, FMEA, and PRA can be used to identify at which point previously defined interventions are most appropriate. In health care, most instances of patient harm are attributed to individuals at the sharp end of the care process. Both Morey See ref. He stresses, making things visible, simplifying the structure of tasks, use of process mapping, forcing functions to guide the uses, assuming that things will fail and plan for recovery, and avoid recycling previous failure prone designs. There is a growing trend to improve processes using mistake proofing techniques which design out active failures. Mistake proofing often involves relatively inexpensive changes to systems that can have high returns on investment. An example of mistake proofing would be the connectors on anesthesia equipment that will not allow the switching of different gases or the blood lock which prevents the transfusion of a unit of blood without the correct patient identification code. The IOM report also stressed the importance of automating repetitive, time-consuming, and error-prone tasks through the use of technology. Skill-based behavior refers to "automatic" tasks requiring little or no conscious attention during execution whereas rule-based behavior involves the application of existing convention, policy, or schemes to manage familiar situations. Despite the promise of improved safety through technology, a number of safety experts note that there are limits to technology. Cook emphasizes that future failures of automated systems cannot be forestalled by providing simply another layer of defense against failure. He identified five points that define the design issues relating to the interface: The challenge for system designers is to sufficiently engage the operator without sacrificing the benefits of automation. A correlate of this concern relates to trust. Because no system operates with absolute reliability, too high a level of trust may be problematic. Both are critical in the successful operation of a system. However, paradoxically, if reliability of the system is very high, operator vigilance is likely to decrease so that early signs of system change are less likely to be detected. Additionally, confidence in availability may decrease the probability of system redundancy and backup. Skills for backup or crisis mode operation are then less likely to be wellâ€"practiced, and the risk of error becomes greater when unplanned, unpracticed changes are performed under pressure. Operational complacency remains problematic unless process control and an external quality assurance function help adjust the degree of trust to more appropriate levels. A lesson can be learned from Xerox when they moved from technical reliability to perceived reliability. The important lesson learned from aviation and other industries is that when new technology-based systems are introduced into an existing process, there is an important interaction between human behavior, organizational procedures, policies, and culture. It is within this nested context and under actual operational conditions that a new technology needs to be studied to examine actual and potential failure points. It is not only the technology itself technical design that must be studied, but also the organizational and human factor aspects of its actual working environment. It is through the observation of system operations and a review of reported failures and near misses associated with the entire work flow process that information can be gained on potential errors and possible failures. While technology-based solutions can address some active failures, latent conditions may not be able to be addressed with a technical intervention. Organizational changes and the restructuring of the work or care process are equally important. Many risks and hazards are contained within less than optimal processes of care which do not lend themselves to technical solutions but rather require changes to the process and structure of care. The actual conditions of health care work may well need significant modification or change to reduce the potential from patient harm. Both AHRQ and the PSTF believe that ultimately patient safety is a local issue that must be addressed by each heath care organization at the point of care. However, the Federal government can and is willing to help local health care organizations meet the challenge of patient safety. Health care institutions are willing and able to successfully implement safe practices which have reduced actual or potential harm to patients. As part of the identification process in stage one, AHRQ commissioned a systematic review of patient safety practices; a total of 79 practices were reviewed. The resulting report has served as a starting point for determining what safe practices institutions might wish to consider for adoption See ref. The National Quality Forum has also established recommendation for patient safety practices for which there is indication for adoption See ref. JCAHO established goals to help accredited organizations address specific areas of concern in regards to patient safety. Each goal includes no more than two succinct, evidence- or expert-based recommendations. To ensure a greater focus on priority safe practices, no more than six goals are established for any given year See ref. Building on these reports and recommendations, AHRQ and the PSTF have developed the Safe Practices Challenge Grants RFA to assist institutions to move from stage one of the epidemic process to stage two, actual implementation of interventions to eliminate or reduce the risk of injury and harm to patients from the process of care they receive. The anticipated objectives of risk assessment projects are to be well documented risk assessment reports and suggested approaches to eliminate the identified risk. The anticipated goal of the patient safety practice implementation projects would be a well developed case study documenting the impact of the safe practice on patient care and the manner in which barriers to adoption and implementation were overcome. There is a cost sharing requirement of a minimum 50 percent of total costs allocated to the project.

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Chapter 7 : RFA-HS SAFE PRACTICES IMPLEMENTATION CHALLENGE GRANTS

Most contributions to the 10th Challenge can be found in the book (to be) published by AMS in Q1/ (see cover on the right): David A. Bader, Henning Meyerhenke, Peter Sanders, Dorothea Wagner (eds.): Graph Partitioning and Graph Clustering. 10th DIMACS Implementation Challenge Workshop.

Eisenstat, published in the summer issue of "Sloan Management Review," the six silent killers of strategy implementation are top-down or complacent upper management, unclear strategy and conflicting priorities, ineffective senior management team, poor vertical communication, poor coordination across the enterprise and inadequate middle-manager and supervisor management skills. Training and communication are key to overcoming these challenges. Engage all levels of your company in the strategy planning process. Information flow from the lowest levels of the company up to the decision makers, brings valuable enterprise information to the decision and planning process. Top management must be fully aware of how the company operates and how change will affect operation. Communicate the need and how decisions were made to fill that need. Employees and all stakeholders must understand why the strategy is being put in place and its goals. Change often causes paranoia among employees. Making them feel they are an important part of the change process and educating them about the details will help to create enthusiasm and cooperation instead of paranoia. Obtain buy-in by all key employees and stakeholders involved in implementing the strategy. No matter how brilliant top management thinks the new plan is, if the production department thinks it is unworkable, they will resist change and the plan will likely fail. Conduct informational sessions or training to achieve a comfort level with new strategic processes and procedures. This is the time to make any necessary changes to the plans as gaps and mistakes appear. Informational sessions often elicit helpful suggestions from staff and line employees. Implement the new strategy with fanfare. It is important that all levels of employees are enthusiastic about the change and feel as though they have been rewarded for their help in bringing it about. There must also be a broad understanding of when the change begins, so create a launch date or schedule that everyone knows and can easily follow. Tip Start your planning process with an enterprise-wide series of brainstorming sessions. Report the decisions made as a result, and review the feedback on those decisions. If bottom-up information flow has been weak in the past, it will take some time to gain the trust of line personnel and to encourage their candid response.

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Chapter 8 : 6 key challenges to consider for successful IoT implementation

The DIMACS Implementation Challenges address questions of determining realistic algorithm performance where worst case analysis is overly pessimistic and probabilistic models are too unrealistic: experimentation can provide guides to realistic algorithm performance where analysis fails.

In the following descriptions, n denotes the number of vertices in the graph. Graph Format Note that for the Challenge the input graphs might be seen as unweighted, i. Details on this aspect will be announced later. Such lines are ignored. The first of these lines contains either two, three, or four integers, separated by space. The first two obligatory entries are the number of vertices and the number of edges in the graph. Note that in this case the number of edges is only half of the sum of the vertex degrees. The third and fourth parameter in the first line are optional and control input of weighted graphs. For details on weighted graphs see Section 4. There is one exception to the use of the format described in Section 4. Since Metis does not allow such graphs, this extension of the format is necessary. To exclude these graphs upfront would mean to exclude many real-world instances. Also note that in this case the second parameter is the actual number of edge entries in the file, i. This deviation is necessary due to self-loops. In the unweighted case, the remaining n lines contain neighbor lists for each vertex from 1 to n in order. These lists are sets of integers separated by spaces and contain all the neighbors of a given vertex. The neighbors may be listed in any order. Note that vertices are numbered 1 to n, not from 0 to n For possible extensions, please refer again to Section 4. You will find there examples of small graphs and their respective representations, too. In line i the assignment value for vertex i is given as an integer between 0 and p-1, where p is the number of partitions. Geometry Format Vertex coordinates can optionally be supplied in a separate file. This file should have the same name as the graph file. But instead of the file extension. These coordinate files must have n uncommented lines, with line i containing the coordinates of vertex i. Each line must contain one, two, or three floating-point values, depending on the geometry type. News Jan 23, The Challenge book will be published by AMS soon. The challenge results are online. New graph category Star Mixtures. Most talk slides are available. Final workshop program online! The challenge instances have been announced. Tim Mattson Intel has joined the advisory board. Dec 1 and 12, Updated workshop registration information, new graphs in category numerical! Thank you for your submissions! New details on workshop times available! Updated workshop and venue information. New graph category Redistricting. The new archive size is about 35GB. Minor update of objective functions to handle some pathological cases. The scoring rules and objective functions are now available! Maintenance in the testbed archive nearly completed. Some additions and descriptions are still expected. Changes of and additions to the testbed data from this point on will be announced on the mailing list. A few changes in the directory structure and file names have been made to improve consistency. All testbed files approx. Note that the webserver creates a few additional HTML files mostly directory listings. The website is published at its permanent location.

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Chapter 9 : Service-Oriented Architecture: Implementation Challenges

Selecting the right framework for ECM implementation is another challenge that needs to be addressed with care. Industry leading tools like Microsoft SharePoint, Documentum, FileNet and Aflresco all provide the necessary framework for mapping business requirements to technical solutions.

Below are of some of the biggest challenges, and a few ideas about how to manage them for great results. Creating a Vision Why do schools with the same technology experience drastically different results? Who will use the technology? How will they use it? How will you measure progress? Start with a small, focused implementation instead of trying to use one tool to solve every problem for everyone. Money, Money, Money Be creative with funding sources. Will the new tech benefit SPED students? Can you use it for your after-school program, too? Professional Development Good professional development will provide you with more than how-tos and button-clicking. Look for PD that will inspire teachers, share best practices, and guide your implementation to success. Get Everyone Onboard Every implementation seems to have a couple naysayers who try to bring down the rest of the group and sometimes succeed. Help prevent this by including teachers early on in the selection and planning process. Provide an opportunity for teachers to express concerns in a productive way, offer individual coaching, and set clear expectations for usage. Scheduling for Success Allocating technology resources is easily one of the biggest challenges of any implementation. Will the technology always be scheduled, or is it also available for impromptu use? Will students go to the tech, or will it come to their classrooms? Does every student need access, or just certain groups? Make the most of every minute by scheduling use before and after school. Systems and Procedures How will devices be charged? Will students be allowed to print or access other hardware? Organization is key to success, so ensure that all teachers understand the ground rules. Unlocking Student Motivation When the shiny has worn off, and technology has become the norm for students, how will you keep them motivated? Will students receive a grade for their work? Can you sponsor a contest between classes for the highest usage or most growth? Perhaps if students meet their goals they can participate in a special activity. Consider what your students value most, and use it to your advantage. Older students often crave social time, so find a way for them to earn breaks. Younger students might be motivated by competition, Tootsie Pops, or extra recess. Data and Progress Monitoring Remember the vision you created for your implementation? Regular progress monitoring is one of the biggest keys to a successful technology program. Are teachers meeting expectations? Are students demonstrating success and making progress toward their goals? Is usage what you expected? Why or why not? Routinely monitor program data and communicate successes and areas for improvement with your teachers. If you had a successful first year, plan to expand and improve in year two. Communicate goals and expectations to teachers and provide on-going professional development to move beyond the basics.