DOWNLOAD PDF REENGINEERING MIS

Chapter 1 : Kevin G. Coleman (Author of Reengineering Mis)

Business process re-engineering (BPR) is a business management strategy, originally pioneered in the early s, focusing on the analysis and design of workflows and business processes within an organization.

Workflow Ability of ERP and WfM Systems Reviews and Testimonials For the coming years, this book will serve as a reference manual for the skilled Business System re-engineer who wants to learn from others experiences in both failure and successful implementations. These legacy systems are standalone systems that are limited in scope as they tend to be infrastructure-specific, not integrated with other systems, and usually, information is not readily shared between systems. With recent developments, particularly the trends towards e-Commerce, Enterprise Resource Planning ERP , and Supply chain management SCM , many companies are realizing that they will have to migrate to these new systems in order to remain competitive. The migration from legacy systems to modern systems could be challenging from the business and technical point of view. However, such projects often failed for several reasons: Each modern system has its own set of challenges when it comes to the migration of legacy systems. The migration of legacy systems into ERPs is challenging as these are integrated pre-packaged systems designed to support many organizational functions and their customization is normally discouraged. In order to reduce the risk of failure for implementation, vendors encourage business process re-engineering, rather than software customization of ERPs. It is often argued that it is more advantageous for companies to use them without changes as these were built based on best practices that incorporate industry standards. Vendors encourage business process reengineering not only to be able to easily implement ERPs but also in order to achieve dramatic improvements in one or more performance measures in the business that is adopting the ERP. Business process reengineering can increase the risk of failure of a project due to resistance to change from organizations, difficulty in training employees, and business requirements becoming obsolete, and these risks need to be managed properly during the project execution in order to maximize success rates. The reengineering of legacy systems to E-Commerce can also be a challenge as this process relies heavily on the ability to integrate them with web applications and web services such as payment systems. For these, legacy systems would need to support Web architectures such as the Service Oriented Architecture. This support would require a change of paradigm from structure to component based systems that would require a change of software models from structured models such as data flow diagrams to UML based models. Supply Chain Management systems are normally used to integrate business functions and business processes within and across companies, into a cohesive and high-performing business model. Legacy systems need to be reengineered to support modern supply chain management systems such as e-procurement. Some concerns for the reengineering of legacy systems into supply chain management systems include security of data exchanged, integration of business processes among suppliers, data exchange over networks, transformation of legacy systems into Web services, and information flow among different supplier tiers in the supply chain. Although each modern system might require a different form of legacy systems reengineering, information systems reengineering in general has the objective of extracting the contents, data structures, and flow of data and process contained within existing legacy systems in order to reconstitute in to a new form and subsequent implementation. Businesses must constantly adapt to a dynamically changing environment that requires choosing an adaptive and dynamic information architecture that has the flexibility to support both changes in the business environment and changes in technology. The book covers different techniques that could be used in industry in order to reengineer business processes and the legacy systems into more flexible systems capable of supporting modern trends such as ERP, Supply chain management systems, and E-commerce. The book also covers related aspects to the reengineering of legacy systems: The book consists of fourteen chapters, each focusing on reengineering of legacy systems to turn them into modern enterprise systems. The special features in this approach include the introduction of service oriented architecture SOA for Web application integration, using model driven development approach with code generation, and agile development process. The legacy systems are often designed using the structured systems analysis and design SSAD , whereas the modern systems are object oriented using the Unified

Modeling Language UML documentation. Chapter 2 highlights the need for converting traditional documentation of legacy systems to object oriented approach, and presents a set of rules to automate the conversion of systems, which were originally modeled using structured techniques to UML. Chapter 3 discusses the details of systems development and evolution models mainly aiming at an ongoing reengineering of legacy systems, and proposes few strategies for reengineering of both data oriented model and process oriented models. The chapter focuses on legacy systems to incorporate the interfaces to external systems for automatically updating the data, and creating an extended process by including the supplier and customer processes. Chapter 4 envisions an Information System as a set of interdependent components that provide the intended services, and presents a methodology for component based modeling and development of an information system, starting from the requirements definition phase, arriving at candidate components and creation of final components and their interfaces. The methodology aims at clarifying the intricate details and usage of an information system via business type models and use case models. The chapter proposes a methodology for component reengineering; model-view-control framework for component evolution, refinement, and replacement to achieve a reengineered Information System that reflects current requirements in business domain. Chapter 5 focuses on inter-organizational processes and identifies eight process issues that need to be taken into account when evaluating inter-organizational integration configurations. It also presents few examples upon how problems surface in a completely centralized and in a completely decentralized inter-organizational process integration scenarios. The chapter presents a comprehensive questionnaire with relevant and probing questions that have collected data on obsolescence of requirements, in order to gather data for indentifying risk factors and their impact. This research helps in turning IT project failures into project successes. Chapter 7 aims at automation of a business process via workflow management system or ERP system embedding workflow functionalities. The wider diffusion of ERP systems tends to favor the latter solution. Then, an empirical study was conducted regarding two different case studies. The correctness and completeness of the process models implemented using ERP and WfM systems were evaluated and analyzed. Chapter 8 emphasizes the importance of evaluating the risks while planning and implementation of ERP systems. The chapter presents a case study example focusing on the implementation phase of ERP system, stressing upon the validity of specific risk management model. A third model similar to the second is also proposed, which relies heavily on best-practises and assessment frameworks from the industry. The chapter investigates how many CSFs are strongly correlated with each other for the success of ERP projects in the manufacturing sector. Chapter 10 describes a debacle that occurred when a large assembler of fast moving consumer electronics in a newly formed supply chain involving four key players in a sell-buy relationship. The chapter explored mistrust of trading partners as the companies receiving component sets refused liability for damage or defects introduced by upstream companies in the supply chain. A remedial quick-fix using centralized inspection at the principal supplier soon was adopted to facilitate supply of complete sets of mechanical parts to the assembler. The chapter highlights significant similarities between the case study supply chain and the concepts used in business process reengineering. Chapter 11 identified the need for reengineering the current legacy supply chain management systems in order to integrate them with modern e-procurement systems, and presents a case study that evaluates the security of transactions for integration of an e-procurement solution in a large organization, addressing both business and technological issues by examining the current threat model, security policies, system architecture, and security controls. The chapter also proposes a new model for reengineering projects that require the integration of e-procurement systems, which includes recommendations for improvements. Chapter 12 proposes a framework-based strategy using. Chapter 13 covers the work to produce an architecture that shows how to reengineer traditional point of sales POS terminal payments to adapt payments over the Internet via Web services. In current environment of global economy, vendors can negotiate about services and fees with payment providers worldwide. Finally, chapter 14 highlights the importance of software management, especially in Aerospace Industry, and stresses that negligence of any maintenance components can put the organization into risk. Standardizing processes are necessary to avoid or minimize the risks. The chapter looks into a reengineered process to deploy the upgrades proactively in a cost effective manner. Therefore, the book highlights the need for reengineering a legacy

systems to turn it into a contemporary enterprise system that accomplishes the same or better results than any other off-the-shelf system. He is also a registered professional engineer and accountant in Canada. He has more than 17 years of professional experience in Information Technology, mathematical modeling, financial analysis, and programming. His main research interests include Supply Chain Systems, Risk Management, E-business, Information Security and Auditing, accounting and financial Information Systems, fraud detection, and reengineering. Malleswara received his Bachelor of Technology B. He received his Master of Technology M. T , Kharagpur, India. Later, Malleswara joined Tata Consultancy Services TCS in Bombay and worked on several software systems engineering, reengineering, design, and development projects involving several companies as a systems consultant in North America, Europe, Middle-East, and Asia. In , Malleswara joined Societe Internationale de Telecommunications Aeronautics SITA in Montreal, Canada and worked on several data and messaging services involving mainly airline data communications. In , Malleswara received his Ph. Talla is serving the airline customers of Orange Business Services.

Chapter 2 : Human Reengineering

Reengineering MIS: Aligning Information Technology and Business Operations provides the background and foundation that will allow the radical change necessary for MIS to contribute to the success of the organization. It provides detailed understanding of reengineering initiatives in business, how to go about incorporating reengineering changes.

Bourgeois Learning Objectives Upon successful completion of this chapter, you will be able to: Introduction The fourth component of information systems is process. But what is a process and how does it tie into information systems? And in what ways do processes have a role in business? This chapter will look to answer those questions and also describe how business processes can be used for strategic advantage. What Is a Business Process? We have all heard the term process before, but what exactly does it mean? A business process, therefore, is a process that is focused on achieving a goal for a business. If you have worked in a business setting, you have participated in a business process. Anything from a simple process for making a sandwich at Subway to building a space shuttle utilizes one or more business processes. Processes are something that businesses go through every day in order to accomplish their mission. The better their processes, the more effective the business. Some businesses see their processes as a strategy for achieving competitive advantage. A process that achieves its goal in a unique way can set a company apart. A process that eliminates costs can allow a company to lower its prices or retain more profit. Documenting a Process Every day, each of us will conduct many processes without even thinking about them: But as processes grow more complex, they need to be documented. For businesses, it is essential to do this, because it allows them to ensure control over how activities are undertaken in their organization. It also allows for standardization: The simplest way to document a process is to simply create a list. The list shows each step in the process; each step can be checked off upon completion. For example, a simple process, such as how to create an account on eBay, might look like this: Choose your user ID and password. For example, here is the process for determining if an article for a term needs to be added to Wikipedia: Search Wikipedia to determine if the term already exists. If the term is found, then an article is already written, so you must think of another term. If the term is not found, then look to see if there is a related term. If there is a related term, then create a redirect. If there is not a related term, then create a new article. This procedure is relatively simple â€" in fact, it has the same number of steps as the previous example â€" but because it has some decision points, it is more difficult to track with as a simple list. In these cases, it may make more sense to use a diagram to document the process: Process diagram for determining if a new term should be added to Wikipedia click to enlarge. Public Domain Managing Business Process Documentation As organizations begin to document their processes, it becomes an administrative task to keep track of them. As processes change and improve, it is important to know which processes are the most recent. It is also important to manage the process so that it can be easily updated! A document management system stores and tracks documents and supports the following functions: The document management system will keep multiple versions of documents. The most recent version of a document is easy to identify and will be served up by default. When a process needs to be changed, the system will manage both access to the documents for editing and the routing of the document for approvals. When a process changes, those who implement the process need to be made aware of the changes. A document management system will notify the appropriate people when a change to a document is approved. Of course, document management systems are not only used for managing business process documentation. Many other types of documents are managed in these systems, such as legal documents or design documents. ERP Systems An enterprise resource planning ERP system is a software application with a centralized database that can be used to run an entire company. An ERP system click to enlarge A software application: The system is a software application, which means that it has been developed with specific logic and rules behind it. It has to be installed and configured to work specifically for an individual organization. With a centralized database: All data in an ERP system is stored in a single, central database. This centralization is key to the success of an ERP â€" data entered in one part of the company can be immediately available to other parts of the company. That can be used to run an entire company: If they so wish, companies can purchase modules for an ERP that

represent different functions within the organization, such as finance, manufacturing, and sales. Some companies choose to purchase many modules, others choose a subset of the modules. When an ERP vendor designs a module, it has to implement the rules for the associated business processes. A selling point of an ERP system is that it has best practices built right into it. In other words, when an organization implements an ERP, it also gets improved best practices as part of the deal! For many organizations, the implementation of an ERP system is an excellent opportunity to improve their business practices and upgrade their software at the same time. But for others, an ERP brings them a challenge: Is the process embedded in the ERP really better than the process they are currently utilizing? And if they implement this ERP, and it happens to be the same one that all of their competitors have, will they simply become more like them, making it much more difficult to differentiate themselves? The good news is that ERP systems also have the capability to be configured with custom processes. For organizations that want to continue using their own processes or even design new ones, ERP systems offer ways to support this through the use of customizations. But there is a drawback to customizing an ERP system: Whenever an update to the ERP system comes out, any organization that has created a custom process will be required to add that change to their ERP. This will require someone to maintain a listing of these changes and will also require retesting the system every time an upgrade is made. Organizations will have to wrestle with this decision: When should they go ahead and accept the best-practice processes built into the ERP system and when should they spend the resources to develop their own processes? It makes the most sense to only customize those processes that are critical to the competitive advantage of the company. Business Process Management Organizations that are serious about improving their business processes will also create structures to manage those processes. BPM is more than just automating some simple steps. While automation can make a business more efficient, it cannot be used to provide a competitive advantage. BPM, on the other hand, can be an integral part of creating that advantage. An organization should look for processes that are essential to the functioning of the business and those that may be used to bring a competitive advantage. The best processes to look at are those that include employees from multiple departments, those that require decision-making that cannot be easily automated, and processes that change based on circumstances. Suppose a large clothing retailer is looking to gain a competitive advantage through superior customer service. As part of this, they create a task force to develop a state-of-the-art returns policy that allows customers to return any article of clothing, no questions asked. The organization also decides that, in order to protect the competitive advantage that this returns policy will bring, they will develop their own customization to their ERP system to implement this returns policy. As they prepare to roll out the system, they invest in training for all of their customer-service employees, showing them how to use the new system and specifically how to process returns. Once the updated returns process is implemented, the organization will be able to measure several key indicators about returns that will allow them to adjust the policy as needed. As changes to the returns policy are made, the changes are rolled out via internal communications, and updates to the returns processing on the system are made. In our example, the system would no longer allow a dress to be returned after fourteen days without an approved reason. If done properly, business process management will provide several key benefits to an organization, which can be used to contribute to competitive advantage. When a business process is designed correctly and supported with information technology, employees will be able to implement it on their own authority. In our returns-policy example, an employee would be able to accept returns made before fourteen days or use the system to make determinations on what returns would be allowed after fourteen days. By building measurement into the programming, the organization can keep up to date on key metrics regarding their processes. In our example, these can be used to improve the returns process and also, ideally, to reduce returns. As an organization implements processes supported by information systems, it can work to implement the best practices for that class of business process. In our example, the organization may want to require that all customers returning a product without a receipt show a legal ID. This requirement can be built into the system so that the return will not be processed unless a valid ID number is entered. By creating a process and enforcing it with information technology, it is possible to create a consistency across the entire organization. In our example, all stores in the retail chain can enforce the same returns policy. And if the returns policy changes, the change can be instantly

enforced across the entire chain. Business Process Reengineering As organizations look to manage their processes to gain a competitive advantage, they also need to understand that their existing ways of doing things may not be the most effective or efficient. A process developed in the s is not going to be better just because it is now supported by technology. He states in the introduction to the article: They are geared towards greater efficiency and control. Yet the watchwords of the new decade are innovation and speed, service, and quality. It is time to stop paving the cow paths. Instead of embedding outdated processes in silicon and software, we should obliterate them and start over.

Chapter 3 : What is business process reengineering (BPR)? definition and meaning - blog.quintoapp.com

*Reengineering Mis: Aligning Information Technology and Business Operations [Kevin G. Coleman, Jim Ettwein, Clelland Johnson, Dick Pigman, Deborah Pulak] on blog.quintoapp.com *FREE* shipping on qualifying offers.*

Ongoing continuous improvement The aspects of a BPM effort that are modified include organizational structures, management systems, employee responsibilities and performance measurements, incentive systems, skills development, and the use of IT. BPR can potentially affect every aspect of how business is conducted today. Wholesale changes can cause results ranging from enviable success to complete failure. If successful, a BPM initiative can result in improved quality, customer service, and competitiveness, as well as reductions in cost or cycle time. One department may be optimized at the expense of another Lack of time to focus on improving business process Lack of recognition of the extent of the problem Lack of training People involved use the best tool they have at their disposal which is usually Excel to fix problems Inadequate infrastructure Overly bureaucratic processes Lack of motivation Many unsuccessful BPR attempts may have been due to the confusion surrounding BPR, and how it should be performed. Organizations were well aware that changes needed to be made, but did not know which areas to change or how to change them. As a result, process reengineering is a management concept that has been formed by trial and error or, in other words, practical experience. As more and more businesses reengineer their processes, knowledge of what caused the successes or failures is becoming apparent. Otherwise, BPR is only a short-term efficiency exercise. Significant changes to even one of those areas require resources, money, and leadership. Changing them simultaneously is an extraordinary task. Since BPR can involve multiple areas within the organization, it is important to get support from all affected departments. Through the involvement of selected department members, the organization can gain valuable input before a process is implemented; a step which promotes both the cooperation and the vital acceptance of the reengineered process by all segments of the organization. Getting enterprise wide commitment involves the following: Before any BPR project can be implemented successfully, there must be a commitment to the project by the management of the organization, and strong leadership must be provided. However, top management commitment is imperative for success. By informing all affected groups at every stage, and emphasizing the positive end results of the reengineering process, it is possible to minimize resistance to change and increase the odds for success. The ultimate success of BPR depends on the strong, consistent, and continuous involvement of all departmental levels within the organization. This team will form the nucleus of the BPR effort, make key decisions and recommendations, and help communicate the details and benefits of the BPR program to the entire organization. The determinants of an effective BPR team may be summarized as follows: Team members who are selected from each work group within the organization will affect the outcome of the reengineered process according to their desired requirements. The BPR team should be mixed in depth and knowledge. For example, it may include members with the following characteristics: Members who do not know the process at all. Members who know the process inside-out. One or two members of the best, brightest, passionate, and committed technology experts. Members from outside of the organization [19] Moreover, Covert recommends that in order to have an effective BPR team, it must be kept under ten players. If the organization fails to keep the team at a manageable size, the entire process will be much more difficult to execute efficiently and effectively. The efforts of the team must be focused on identifying breakthrough opportunities and designing new work steps or processes that will create quantum gains and competitive advantage. Too often, BPR teams jump directly into the technology without first assessing the current processes of the organization and determining what exactly needs reengineering. In this analysis phase, a series of sessions should be held with process owners and stakeholders, regarding the need and strategy for BPR. These sessions build a consensus as to the vision of the ideal business process. They help identify essential goals for BPR within each department and then collectively define objectives for how the project will affect each work group or department on individual basis and the business organization as a whole. The idea of these sessions is to conceptualize the ideal business process for the organization and build a business process model. Those items that seem unnecessary

or unrealistic may be eliminated or modified later on in the diagnosing stage of the BPR project. It is important to acknowledge and evaluate all ideas in order to make all participants feel that they are a part of this important and crucial process. Results of these meetings will help formulate the basic plan for the project. This plan includes the following: The business needs analysis contributes tremendously to the re-engineering effort by helping the BPR team to prioritize and determine where it should focus its improvements efforts. This linkage should show the thread from the top to the bottom of the organization, so each person can easily connect the overall business direction with the re-engineering effort. This alignment must be demonstrated from the perspective of financial performance, customer service, associate value, and the vision for the organization. There is always a possibility that an organization may make significant investments in an area that is not a core competency for the company and later outsource this capability. Such reengineering initiatives are wasteful and steal resources from other strategic projects. These are vital factors that contribute to building an effective IT infrastructure for business processes. An effective IT infrastructure composition process follows a top-down approach, beginning with business strategy and IS strategy and passing through designs of data, systems, and computer architecture. IT strategic alignment is approached through the process of integration between business and IT strategies, as well as between IT and organizational infrastructures. Walmart, for example, would not have been able to reengineer the processes used to procure and distribute mass-market retail goods without IT. Ford was able to decrease its headcount in the procurement department by 75 percent by using IT in conjunction with BPR, in another well-known example. This, in turn, is determined by the types of activities embedded in a business process, and their sequencing and reliance on other organizational processes. As a result, there are many factors that prevent the effective implementation of BPR and hence restrict innovation and continuous improvement. Change management , which involves all human and social related changes and cultural adjustment techniques needed by management to facilitate the insertion of newly designed processes and structures into working practice and to deal effectively with resistance, is considered by many researchers to be a crucial component of any BPR effort. One of the most overlooked obstacles to successful BPR project implementation is resistance from those whom implementers believe will benefit the most. Most projects underestimate the cultural effect of major process and structural change and as a result, do not achieve the full potential of their change effort. Many people fail to understand that change is not an event, but rather a management technique. Change management is the discipline of managing change as a process, with due consideration that employees are people, not programmable machines. An important step towards any successful reengineering effort is to convey an understanding of the necessity for change. Organizational culture is a determining factor in successful BPR implementation. Culture in an organization is a self-reinforcing set of beliefs, attitudes, and behavior. Culture is one of the most resistant elements of organizational behavior and is extremely difficult to change. BPR must consider current culture in order to change these beliefs, attitudes, and behaviors effectively. Messages conveyed from management in an organization continually enforce current culture. Change is implicitly driven by motivation which is fueled by the recognition of the need for change. The first step towards any successful transformation effort is to convey an understanding of the necessity for change. Implementing BPR successfully is dependent on how thoroughly management conveys the new cultural messages to the organization. People should be the focus for any successful business change. BPR is not a recipe for successful business transformation if it focuses on only computer technology and process redesign. In fact, many BPR projects have failed because they did not recognize the importance of the human element in implementing BPR. Understanding the people in organizations, the current company culture, motivation, leadership, and past performance is essential to recognize, understand, and integrate into the vision and implementation of BPR. If the human element is given equal or greater emphasis in BPR, the odds of successful business transformation increase substantially. BPR is a successive and ongoing process and should be regarded as an improvement strategy that enables an organization to make the move from traditional functional orientation to one that aligns with strategic business processes. It is essential that the automation infrastructure of the BPR activity provides for performance measurements in order to support continuous improvements. It will need to efficiently capture appropriate data and allow access to appropriate individuals. To ensure that the process generates the desired benefits, it must

be tested before it is deployed to the end users. If it does not perform satisfactorily, more time should be taken to modify the process until it does. A fundamental concept for quality practitioners is the use of feedback loops at every step of the process and an environment that encourages constant evaluation of results and individual efforts to improve. This will also contribute to a continuous risk assessment and evaluation which are needed throughout the implementation process to deal with any risks at their initial state and to ensure the success of the reengineering efforts. Anticipating and planning for risk handling is important for dealing effectively with any risk when it first occurs and as early as possible in the BPR process. Hammer and Champy use the IBM Credit Corporation as well as Ford and Kodak, as examples of companies that carried out BPR successfully due to the fact that they had long-running continuous improvement programs. However, in order to achieve that, there are some key success factors that must be taken into consideration when performing BPR. BPR success factors are a collection of lessons learned from reengineering projects and from these lessons common themes have emerged. In addition, the ultimate success of BPR depends on the people who do it and on how well they can be committed and motivated to be creative and to apply their detailed knowledge to the reengineering initiative. Organizations planning to undertake BPR must take into consideration the success factors of BPR in order to ensure that their reengineering related change efforts are comprehensive, well-implemented, and have minimum chance of failure. Some prominent reasons include: Reengineering assumes the need to start the process of performance improvement with a "clean slate," i. According to Eliyahu M. Others have claimed that reengineering was a recycled buzzword for commonly-held ideas. Abrahamson argued that fashionable management terms tend to follow a lifecycle, which for Reengineering peaked between and Ponzi and Koenig They argue that Reengineering was in fact nothing new as e. The most frequent critique against BPR concerns the strict focus on efficiency and technology and the disregard of people in the organization that is subjected to a reengineering initiative. Very often, the label BPR was used for major workforce reductions. Thomas Davenport, an early BPR proponent, stated that: But the fact is, once out of the bottle, the reengineering genie quickly turned ugly. I was reflecting my engineering background and was insufficient appreciative of the human dimension.

Chapter 4 : Business process reengineering - Wikipedia

The reengineering efforts of the early s have increased pressure on many MIS organizations to reengineer their MIS structure. Reengineering MIS: Aligning Information Technology and Business Operations provides the background and foundation that will allow the radical change necessary for MIS to contribute to the success of the organization.

Plant safety improved by covering sharp objects with soft material to reduce accidents. Improved communication and quality of human resources Employee suggestions for improvements in cost, quality, safety, and technology. Better communication between manufacturing and sales. Group leaders willing to learn new management techniques such as cost accounting. Next generation of group leaders identified and seasoned by cross-rotation. When production was first commercialized in , soy sauce was a premium product and commanded a high price. Starting in , consolidation began to occur, and a few large firms that invested heavily in production capacity dominated the industry. Supply swiftly outstripped demand, and by , the price of soy sauce began to fall precipitously. Higashimaru Shoyu is the third largest firm in the industry, with 5 percent market share. In response to competitive conditions, the company adopted a strategy of rapid new-product introduction, but, despite its success at diversification, its profitability fell sharply in the mids. The factory was organized into seventeen groups in five sections responsible for the major production processes: Fermentation was the largest section, with five groups â€" two sections each devoted to two batch production processes koji preparation and moromi pressing and one to wastewater treatment. If I liked studying, I would have stayed at school. The Higashimaru workforce and group leaders were trapped in a self-imposed prison of comfort with the status quo, reluctance to make dramatic changes, and the belief that dramatic change was neither needed nor possible. However, other techniques â€" notably the tatsumaki tornado program and the hangen cutting in half game â€"were designed to achieve a more radical change in performance through discontinuous improvement. When profits dropped off sharply in the mids as a result of competitive forces in the industry, Okuno recognized the need for more aggressive approaches to change. His experience demonstrates that both continuous and discontinuous improvement strategies can coexist in harmony. But it also achieved much more. The fourth technique was a draft system to encourage rotation of the best performing workers throughout the plant and create a source of new group leaders. Finally, the fifth technique was a series of experiments in which groups tried to do their work with half the staff and then implemented what they learned. The majority of participants were keen to take part in these meetings: Instead, we discussed their roles and views about their work. Over time, we extended the discussion beyond Higashimaru. For example, at one meeting, we discussed how to save a local railway line that was threatened with closure because of its losses. The group came up with a number of innovative but practical solutions. These suggestions proved to me that the group leaders were now thinking like managers. The workforce was hardworking and highly motivated, but traditional and resistant to change. Okuno first tried to create pressure throughout the plant for continuous improvement. He coined the phrase sagyo-shigoto and repeated the slogan at every opportunity. But the new attitude alone did not result in enough change to satisfy Okuno, who foresaw the need for plant automation, cost reduction, and the introduction of modern production control procedures such as automatic temperature monitoring. That is, 20 percent of the group will support the change, another 20 percent will resist the change, and the remaining 60 percent will be neutral or hesitant toward the change. For assistance, he turned to the group leaders. The seventeen factory groups were managed by group leaders who averaged more than twenty years with the firm. They were junior high school graduates and not highly educated. However, they were very proud of their achievements and were highly motivated. Within the factory, they were considered self-made men. To test how well employees were communicating, Okuno routinely visited the production floor. He sometimes found employees who did not know his instructions, even though they were posted on bulletin boards. After about two years of monthly group leader meetings, the reaction mix had shifted to the desired level in most of the groups. If he volunteered nothing, Okuno asked him to think through the problem and come back later with suggestions. If the subordinate had an idea that Okuno thought was wrong, Okuno did not tell the group leader his solution. As communication within the

groups improved, Okuno began to concentrate on communication among the groups. Except for the monthly meetings, group leaders typically met with each other only when they had problems. While Okuno supported problem-oriented meetings, he also wanted to encourage a more proactive communication approach. For example, Okuno directed the moromi group leader producer of raw soy sauce to visit the sterilizing group to ask their opinion of raw soy sauce quality. His aim was to encourage group leaders to identify potential problems early and develop a helpful, service orientation. In addition, Okuno wanted the group leaders to discuss topics of more general importance, such as new product ideas. First, even though Higashimaru is a relatively small company, it still has the communication gaps pernicious in larger firms. Okuno knew that he alone could not bear the entire burden of communicating the need and the means for change. In organizations that communicate well, every manager has internalized and mastered good communication behavior. Not only does good communication cascade down to the bottom, it also flows up in the form of improvement ideas that require resources and managerial approval. And it flows horizontally across departmental boundaries. The visits to the customer taught group leaders that a major purpose of communication is to collect information â€" from workers and peers in other departments â€" not just to disseminate it. His skillful use of the Socratic method and of praise as a reward are tactics that every reengineering effort should emulate. Price Control System Most of the group leaders in the plant were junior high school graduates and self-made men. I was prepared for a strong negative reaction to the price control system PCS because it would give employees extra clerical work in addition to their normal work loads. However, in reality, the system worked more smoothly than I expected and did not add much extra work. Second, I believe that making money is of common interest to all human beings, and the price control system enabled all the workers to join in the money-making process. Finally, I think it was successful because it introduced a sense of fun into the work-place. Six groups were involved in the soy sauce production process from beginning to end â€" koji preparation, fermentation, moromi management, pasteurization and filtration, bottling, and shipping. For example, the koji preparation group, first in the production process, was expected to buy the resources it consumed from headquarters and sell its output to the moromi management group, next in the process. The groups were expected to make a small profit every month. Okuno set the transfer prices. This 3 percent profit did not equal either the actual or expected profits generated by the process. Instead, he decided that each profit center should have the ability to generate a small profit each month if it operated at expected efficiency. To make the PCS more concrete, Okuno created the fictitious Higashimaru Bank operated by the production control section , which printed its own money, modeled after old Japanese bank notes, in six denominations: Every month, the group leaders closed the PCS account books, and the section managers to whom they reported summarized them. The profit and loss statements were presented in the monthly group leader meetings. Each group leader went to the next one in the process and presented a bill for goods rendered, to be paid in Higashimaru money. In addition, each group had to pay headquarters for the labor it employed, the depreciation on the equipment it utilized, and the raw materials it consumed, if any. Okuno had considered making each group pay interest on the money it borrowed from Higashimaru Bank but abandoned this idea as too complex. After each group had paid its bills and collected its revenues, its monthly profits or losses were determined by the value of the remaining bank notes. When a group ran out of money, it could borrow more from the Higashimaru Bank. For the first few months of the PCS, all six groups were profitable. However, in one month, all six reported losses. Okuno had forgotten to include semiannual employee bonuses in his profit calculations. Since these bonuses equaled 2. There were benefits to being profitable. First, group profitability was taken into account when evaluating individual performance. The leader of a highly profitable group could expect to be promoted faster than a leader of a less profitable one. The two groups could spend the money however they chose, for example, by having a party. Okuno purposefully set the prize amount low to prevent introducing dysfunctional competition between groups that needed to cooperate. Because its goal was learning about costs, Okuno deemed the recognition more important than the money. After the first year, the price control system was evaluated, and other groups were added to get the whole plant involved. But it also resulted in real improvements, like cost savings or intangible objectives like safety. Okuno especially valued the latter improvements, because they emphasized the progress the plant had made in cross-group communications. Commentary Perhaps the most

striking aspect of the PCS is how it made learning about accounting fun. Higashimaru money converted the abstract process of organizational cost accounting into everyday experiences to which everyone could relate â€" purchasing goods and services and increasing or decreasing wealth. He knew that making the simulated changes real, for instance, by establishing the groups as formal profit centers, would have had undesirable side effects in this instance, because the interdependence among the units was greater than their independence. First, it taught people to understand the nature of entrepreneurial risk. However, their focus remained internal to the plant; they were not thinking like entrepreneurs. Okuno wanted the group leaders to focus more on external customers and to look at other enterprises for improvement ideas. For this, he introduced the tatsumaki program. It also forced their immediate subordinates to take responsibility for the groups for three days without warning; they had no choice, because the leaders were gone. The forced responsibility increased communication among the group leaders, their direct subordinates, and other group members. Finally, the program helped the group leaders develop a clearer distinction between job and work. In hindsight, the program was risky because it could have caused problems or accidents. One day in , without warning, Okuno intercepted each of the seventeen group leaders as they were about to enter the plant and told them they could not go in or communicate with their workers for the next three days. Okuno used their anxiety as an opportunity to get them to discuss their management role.

Chapter 5 : What is reengineering? definition and meaning - blog.quintoapp.com

What Is Business Process Reengineering? Business process reengineering (BPR) involves the examination and redesign of business processes and workflows in your organization. A business process is a.

Model-based systems engineering A graphical representation relates the various subsystems or parts of a system through functions, data, or interfaces. Any or each of the above methods are used in an industry based on its requirements. For instance, the N2 chart may be used where interfaces between systems is important. Part of the design phase is to create structural and behavioral models of the system. Once the requirements are understood, it is now the responsibility of a systems engineer to refine them, and to determine, along with other engineers, the best technology for a job. At this point starting with a trade study, systems engineering encourages the use of weighted choices to determine the best option. A decision matrix , or Pugh method, is one way QFD is another to make this choice while considering all criteria that are important. The trade study in turn informs the design, which again affects graphic representations of the system without changing the requirements. In an SE process, this stage represents the iterative step that is carried out until a feasible solution is found. A decision matrix is often populated using techniques such as statistical analysis, reliability analysis, system dynamics feedback control , and optimization methods. Other tools[edit] Systems Modeling Language SysML , a modeling language used for systems engineering applications, supports the specification, analysis, design, verification and validation of a broad range of complex systems. The following areas have contributed to the development of systems engineering as a distinct entity: Cognitive systems engineering Cognitive systems engineering CSE is a specific approach to the description and analysis of human-machine systems or sociotechnical systems. CSE has since its beginning become a recognized scientific discipline, sometimes also referred to as cognitive engineering. The concept of a Joint Cognitive System JCS has in particular become widely used as a way of understanding how complex socio-technical systems can be described with varying degrees of resolution. The more than 20 years of experience with CSE has been described extensively. Control engineering Control engineering and its design and implementation of control systems , used extensively in nearly every industry, is a large sub-field of systems engineering. The cruise control on an automobile and the guidance system for a ballistic missile are two examples. Control systems theory is an active field of applied mathematics involving the investigation of solution spaces and the development of new methods for the analysis of the control process. Industrial engineering Industrial engineering is a branch of engineering that concerns the development, improvement, implementation and evaluation of integrated systems of people, money, knowledge, information, equipment, energy, material and process. Industrial engineering draws upon the principles and methods of engineering analysis and synthesis, as well as mathematical, physical and social sciences together with the principles and methods of engineering analysis and design to specify, predict, and evaluate results obtained from such systems. Interface design Interface design and its specification are concerned with assuring that the pieces of a system connect and inter-operate with other parts of the system and with external systems as necessary. Interface design also includes assuring that system interfaces be able to accept new features, including mechanical, electrical and logical interfaces, including reserved wires, plug-space, command codes and bits in communication protocols. This is known as extensibility. Systems engineering principles are applied in the design of network protocols for local-area networks and wide-area networks. Mechatronic engineering Mechatronic engineering , like systems engineering, is a multidisciplinary field of engineering that uses dynamical systems modeling to express tangible constructs. In that regard it is almost indistinguishable from Systems Engineering, but what sets it apart is the focus on smaller details rather than larger generalizations and relationships. As such, both fields are distinguished by the scope of their projects rather than the methodology of their practice. Operations research Operations research supports systems engineering. The tools of operations research are used in systems analysis, decision making, and trade studies. Several schools teach SE courses within the operations research or industrial engineering department, [25] highlighting the role systems engineering plays in complex projects. Operations research , briefly, is concerned with the optimization of a process under multiple

constraints. Performance is usually defined as the speed with which a certain operation is executed, or the capability of executing a number of such operations in a unit of time. Performance may be degraded when operations queued to execute is throttled by limited system capacity. For example, the performance of a packet-switched network is characterized by the end-to-end packet transit delay, or the number of packets switched in an hour. The design of high-performance systems uses analytical or simulation modeling, whereas the delivery of high-performance implementation involves thorough performance testing. Performance engineering relies heavily on statistics , queueing theory and probability theory for its tools and processes. Program management and project management Program management or programme management has many similarities with systems engineering, but has broader-based origins than the engineering ones of systems engineering. Project management is also closely related to both program management and systems engineering. Proposal engineering Proposal engineering is the application of scientific and mathematical principles to design, construct, and operate a cost-effective proposal development system. Basically, proposal engineering uses the " systems engineering process " to create a cost effective proposal and increase the odds of a successful proposal. Reliability engineering Reliability engineering is the discipline of ensuring a system meets customer expectations for reliability throughout its life; i. Next to prediction of failure, it is just as much about prevention of failure. Reliability engineering applies to all aspects of the system. It is closely associated with maintainability , availability dependability or RAMS preferred by some , and logistics engineering. Reliability engineering is always a critical component of safety engineering, as in failure modes and effects analysis FMEA and hazard fault tree analysis, and of security engineering. Risk Management Risk Management , the practice of assessing and dealing with risk is one of the interdisciplinary parts of Systems Engineering. In development, acquisition, or operational activities, the inclusion of risk in tradeoff with cost, schedule, and performance features, involves the iterative complex configuration management of traceability and evaluation to the scheduling and requirements management across domains and for the system lifecycle that requires the interdisciplinary technical approach of systems engineering. Systems Engineering has Risk Management define, tailor, implement, and monitor a structured process for risk management which is integrated to the overall effort. The "System Safety Engineering" function helps to identify "safety hazards" in emerging designs, and may assist with techniques to "mitigate" the effects of potentially hazardous conditions that cannot be designed out of systems. Scheduling Scheduling is one of the systems engineering support tools as a practice and item in assessing interdisciplinary concerns under configuration management. In particular the direct relationship of resources, performance features, and risk to duration of a task or the dependency links among tasks and impacts across the system lifecycle are systems engineering concerns. Security engineering Security engineering can be viewed as an interdisciplinary field that integrates the community of practice for control systems design, reliability, safety and systems engineering. It may involve such sub-specialties as authentication of system users, system targets and others: Software engineering From its beginnings, software engineering has helped shape modern systems engineering practice. The techniques used in the handling of the complexities of large software-intensive systems have had a major effect on the shaping and reshaping of the tools, methods and processes of Software Engineering.

Chapter 6 : Systems engineering - Wikipedia

The reengineering efforts of the early 90s have increased the stresses on MIS. Now, this book argues, the challenge is to reengineer the field.

Chapter 7 : Chapter 8: Business Processes â€“ Information Systems for Business and Beyond

Management Information Systems course is not only part of management degree but other major fields as well like computer science. This lecture handout was designed and distributed by Prof. Govind Bihari at Bengal Engineering and Science University.