eServices Capability Model (e^{scm}) Annotated Bibliography

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Abstract

The eServices Capability Model is being developed to enable IT-enabled service providers to appraise and improve their capability to provide consistently high quality services in the Internet economy. The framework for this model will enable service providers to establish and manage continually improving relationships with their clients. The primary focus of existing quality models is only on the execution of a contract. The eServices Capability Model addresses the contract activities related to the design and development of an outsourced service but also asserts that successful outsourcing necessitates a focus on (1) the activities leading to the formation of outsourcing relationships and (2) the transitioning or termination of outsourced services. The research used to design this model is represented in this Annotated Bibliography and is organized into the following sections, listed alphabetically: Models and Assessment Methods (Articles and Reports [1-13], CMM-Related [14-31], and Other [32-45]); Outsourcing [46-164]; Outsourcing (Application Service Provider [165-177], Data Capture, Integration and Analysis Services [178-179], Engineering Services [180-197], Human Resource Services [198-211], Multimedia and Animation Services [212-218], Remote Customer Interaction [219-225], Transcription Services [226-240], and Call Center [241]); Standards [242-256], Standards, Articles and Reports [257-272]; Strategic Alliances [273-280]; and Other [281-295]. Entries are ordered alphabetically by author's last name. Where appropriate, copies of papers are available from: Dr. Jane Siegel, School of Computer Science, Carnegie Mellon University, 3603 Newell Simon Hall, 5000 Forbes Avenue, Pittsburgh, PA 15213, or via e-mail at jals@cs.cmu.edu.

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Keywords: Application Service Provider, Data Capture, Data Integration, Data Analysis Services, Engineering Services, Human Resource Services, Multimedia and Animation Services, Remote Customer Interaction, Transcription Services, Call Center Services, Strategic Alliances, Quality, Standards, CMM, Models and Assessment Methods, Outsourcing.

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MODELS AND ASSESSMENT METHODS
Articles and Reports

[1] Das, A., Soh, C.W.L., and Lee, P.C.B. (1999). A Model of Customer Satisfaction with Information Technology Service Providers: An Empirical Study. *Academy of Management Review*: 190-193.

The concept of customer satisfaction is gaining importance in the information technology (IT) industry because organizations have increasingly outsourced their operations and development activities to IT service providers. The service providers are concerned with improving the level of customer satisfaction for two reasons. First, it contributes to overall systems success in the customer organization. Second, it helps the service providers to achieve the goal of retaining and growing their businesses. Drawing on the resource based view of the firm which suggests that employees are a strategic resource in differentiating one service provider from another, the authors hypothesize that the quality of service is dependent on employee satisfaction and employee contextual knowledge. This study is conducted in collaboration with a large IT service provider. The study is divided into two stages. The first stage has already been completed. It involved the collection of data on customer satisfaction, service quality, solution quality, and price. Data were collected via a questionnaire survey distributed to customers of the service provider. The authors received 430 returns and are now in the process of analyzing the data. In the second stage of their study, the authors collected data on employee satisfaction, employee tenure, and employee experience. Employee tenure and employee experience are surrogates for employee contextual knowledge. After all the data has been collected, the authors will use structural equations to test the hypotheses proposed in this study.

[2] Herbsleb, J., Carleton, A., Rozum, J., Siegel, J., and Zubrow, D. (1994). Benefits of CMM-Based Software Process Improvement: Initial Results. Pittsburgh, PA. Software Engineering Institute: 64 pgs.

Data from 13 organizations were collected and analyzed to obtain information on the results of CMM-based software process improvement efforts. The authors report the cost and business value of improvement efforts, as well as the yearly improvement in productivity, early defect detection, time to market, and post-release defect reports. Improvement efforts and results in five organizations are reported in more depth in case studies. In addition, technical issues that were confronted as the authors tried to measure the results of software process improvement are discussed. The paper ends with conclusions about the results of SPI efforts.

[3] Humphrey, W. S. (June 1992). Introduction to Software Process Improvement. Pittsburgh, PA. Software Engineering Institute. CMU/SEI-92-TR-7, ESD-TR-92-007. 36 pgs.

While software now pervades most facets of modern life, its historical problems have not been solved. This report explains why some of the problems have been so difficult for organizations to address and the actions required to address them. It describes the Software Engineering Institute's (SEI) software process maturity model, how this model can be used to guide software organizations in process improvement, and the various assessment and evaluation methods that use this model. The report concludes with a discussion of improvement experience and some comments on future directions for this work.

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[4] Kitson, D. H. An Emerging International Standard for Software Process Assessment. 8 pgs.

In June 1993, an international effort was chartered by ISO/IEC JTC1 to develop a standard for software process assessment. An important goal of this effort is to harmonize existing process assessment approaches. One of the risks in fielding such an international standard is that the appearance of a new and potentially incongruous approach to assessment and improvement could undermine or demotivate continued investment in process improvement by the software acquisition and software supplier communities. If the prospective standard can provide an integrating framework while still advancing the state of practice in software process assessment, it will be a very significant and positive accomplishment. This paper describes the current state of this standardization effort and discusses challenges which must be overcome.

[5] Kitson, D. H., and Kitson, L.J. (1998). ISO/IEC 15504 -Overview and Status.

Briefing objectives include: promote awareness and understanding of a key emerging international software standard, identify the potential risks and benefits to the software community, explain how it relates to key CMM®-related products, and disseminate information on recent developments.

[6] Minnich, I. (1996). ISO 9001 and the SE-CMM. La Mirada, CA, SECAT LLC: 8 pgs. http://www.csz.com/secat

This paper provides a top-level summary of the comparison between the Systems Engineering Capability Maturity Model (SE-CMM) and ISO 9001, the international standard on Quality Systems – Model for Quality Assurance in Design, Development, Production, Installation, and Servicing. People from many organizations have asked to characterize the overlap between the two documents. Questions such as "If we perform systems engineering according to the SE-CMM, or at an SE-CMM level 'x', are we ISO compliant?" are of interest to organizations that are trying to implement both concepts concurrently. The answer, of course, is "It depends." But the bottom line is that an organization can achieve a peaceful coexistence between the SE-CMM and ISO 9001 by planning ahead, looking at the requirements imposed by each document, and folding the results into the organization's way of doing business.

[7] Paulk, M. C. (1995). How ISO 9001 Compares with the CMM. *IEEE Software*: 74-83.

Organizations concerned with ISO 9001 certification often question its overlap with the Software Engineering Institute's Capability Maturity Model. The author looks at 20 clauses in ISO 9001 and maps them to practices in the CMM. The analysis provides answers to some common questions about the two documents.

[8] Software Engineering Institute (2000). The Evidence for CMM®-based Software Process Improvement. Pittsburgh, PA. Software Engineering Institute.

Slide presentation includes the following: The Community Maturity Profile: Adoption of CMM-based Software Process Improvement (SPI) and high level results, Impacts of Software Process Assessments: What happens after the assessment, Project Management Processes: A major barrier for process improvement, and Benefits of CMM-based SPI.

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[9] Software Engineering Institute. SEMA Appraisal Submittal Packet.
http://www.sei.cmu.edu/activities/sema/packet.html

The Appraisal Submittal Packet includes Process Appraisal Information System Record of Entry form. The Organization Questionnaire Project Questionnaire (PAIS) Record of Entry form is designed to assist in the submittal of the appraisal artifacts. The Organization (OQ) and Project Questionnaires (PQ) are designed: (a) To assist an assessment team in pre-on site activities, such as: identifying software groups/projects within an organization (OQ), and identifying which group/projects to appraise (PQ), and (b) For collecting data for customers to enable them to see the aggregated software community profile reports.

[10] Software Engineering Institute Team, Measurement and Analysis (2000). Process Maturity Profile of the Software Community 1999 Year End Update. Pittsburgh, PA. Software Engineering Institute.

This briefing uses information from reports of CMM® Based Appraisals for Internal Process Improvement (CBA IPIs) and Software Process Assessments (SPAs). This briefing includes three primary sections: Current Status (snapshot of the software community based on the most recent assessment, since 1995, of reporting organizations), Community Trends (global distribution of assessments, growth in the number of assessments performed, and shifts in the maturity profile over time), and Organizational Trends (analysis of Key Process Area (KPA) satisfaction, and time to move up in maturity).

[11] Software Engineering Institute Team, Measurement and Analysis (2000). Process Maturity Profile of the Software Community 2000 Mid-Year Update. Pittsburgh, PA. Software Engineering Institute.

This briefing uses information from reports of CMM ® Based Appraisals for Internal Process Improvement (CBA IPIs) and Software Process Assessments (SPAs). This briefing includes three primary sections: Current Status (snapshot of the software community based on the most recent assessment, since 1996, of reporting organizations), Community Trends (global distribution of assessments, growth in the number of assessments performed, and shifts in the maturity profile over time), and Organizational Trends (analysis of Key Process Area (KPA) satisfaction, and time to move up in maturity).

[12] SPICE Team (1998). Phase 2 Trials Interim Report, Approved for Public Release, Version 1.00: 174 pgs.
http://www-sqi.cit.gu.edu.au/spice/
http://www.iese.fhg.de/SPICE

This report details the interim findings of the second phase of empirical trials conducted as part of the SPICE Project. The project was initiated by the International Standards group for Software Engineering, ISO/IEC JTC1/SC7, to develop a standard for software process assessment. The project is undertaking a set of trials to validate the emerging standard against the goals and requirements defined at the start of the SPICE Project and to verify the consistency and usability of its component parts. The project aims to test the emerging standard across a representative sample of organizations for differing scenarios of use to obtain rapid feedback and to allow refinement prior to publication as a full International Standard. The trials should determine whether the emerging standard satisfies the needs of its prospective users.

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Furthermore, the trials are intended to provide guidance on applying the emerging standard. Such an exercise is unprecedented in the software engineering standards community and provides a unique opportunity for empirical validation. An international trials team was established to plan and organize the trials and analyze the results. Trials are being structured into phases, each with its own objectives and scope. An appropriate organization and infrastructure (including procedures and data collection mechanisms) are established to support each phase, from selection and conduct of trials through to analysis of trials data and reporting of results. The original trials plan organized the SPICE Trials into three broad phases. The first phase is completed. This project is currently in the second phase. Data collection for the third phase is planned to start in September 1998.

[13] Tingey, M. O. (1997). Comparing ISO 9000, Malcolm Baldrige and the SEI CMM for Software, Prentice Hall PTR: Upper Saddle River, NJ.

This book compares three quality management systems (QMS) assessment methods: Malcolm Baldrige National Quality Award, ISO 9001, and the Software Engineering Institute (SEI) Capability Maturity Model for Software (CMM). This book also establishes a framework from which to compare QMS assessment methodologies in general. This outline provides a methodology which is best suited for the Organization's QMS. It also provides a cross reference among the various methodologies for specific aspects of a QMS and an overview and detailed analysis of each methodology. Further, it presents a complete translation of all assessment methodology requirements into statements of activity. The book is divided into 5 parts. Part 1 provides an introduction and a backdrop to better understand the comparison. Part 2 provides an overview for each of the 3 QMS assessment methodologies. Part 3 is the core part of the book, and compares the three methodologies. Part 4 provides the framework used for comparing the QMS methodologies. Part 5 provides the detailed requirements of the 3 models.

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MODELS AND ASSESSMENT METHODS
CMM-Related Documents

[14] Byrnes, P., and Phillips, M. (1996). Software Capability Evaluation Version 3.0 Method Description: Pittsburgh, PA. Software Engineering Institute. Technical Report, CMU/SEI-96-TR-002, ESC-TR-96-002. 192 pgs.

This report describes Version 3.0 of the Software Capability Evaluation (SCE) Method. SCE is a method for evaluating the software process of an organization to gain insight into its process capability. This version of the SCE Method is based on the Capability Maturity Model (CMM) defined in Capability Maturity Model for Software, Version 1.1 [Paulk 93a]. It is compliant with the CMM Appraisal Framework (CAF) [Masters 95]. This document is an update to SCE Version 2.0 [CBA Project 94].

[15] CMMI Product Development Team (2000). CMMIsm-SE/SW, V1.0 Capability Maturity Model® – Integrated for Systems Engineering/Software Engineering, Version 1.0 - Continuous Representation. Pittsburgh, PA. Software Engineering Institute: 618 pgs.

The CMM Integration project was formed to sort out the problem of using multiple CMMs. The project's mission was to combine three source models—(1) Capability Maturity Model for Software (SW-CMM®) v2.0 draft C, (2) Electronic Industries Alliance/Interim Standard (EIA/IS) 731, and (3) Integrated Product Development Capability Maturity Model (IPD-CMM) v0.98—into a single model for use by organizations pursuing enterprise-wide process improvement.

[16] CMMI Product Development Team (2000). CMMIsm-SE/SW, V1.0 Capability Maturity Model® – Integrated for Systems Engineering/Software Engineering, Version 1.0 - Staged Representation. Pittsburgh, PA. Software Engineering Institute: 602 pgs.

The CMM Integration project was formed to sort out the problem of using multiple CMMs. The project's mission was to combine three source models—(1) Capability Maturity Model for Software (SW-CMM ®) v2.0 draft C, (2) Electronic Industries Alliance/Interim Standard (EIA/IS) 731, and (3) Integrated Product Development Capability Maturity Model (IPD-CMM) v0.98—into a single model for use by organizations pursuing enterprise-wide process improvement.

[17] CMMI Product Development Team (2000). ARC, V1.0 Assessment Requirements for CMMI, Version 1.0. Pittsburgh, PA. Software Engineering Institute: 47 pgs.
http://www.sei.cmu.edu/cmmi/

The Assessment Requirements for CMMI (ARC) V1.0 defines the requirements considered essential to assessment methods intended for use with CMMI models. In addition, a set of assessment classes is defined based on assessment usage scenarios. These classes are intended primarily for developers of assessment methods to use with CMMI capability models in the context of the CMMI Product Suite. Additional audiences for the document include lead assessors, and other individuals who are involved in or may be interested in process assessment or improvement. The approach employed to provide guidance to assessment method developers is to define a class of assessment method usage scenarios (which are based on years of experience in the process improvement community) called assessment classes. Requirements are then allocated to each class as appropriate based on the attributes associated with that class.

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Thus, a particular assessment method may declare itself to be an ARC class A, B, or C assessment method. This designation implies the sets of ARC requirements which the method developer has considered when designing the method. Assessment methods which satisfy all of the ARC requirements are called class A methods; in addition to being used to render ratings for benchmarking purposes, class A assessment methods can be used to conduct 15504-conformant assessments.

[18] CMMI Product Development Team. (October 2000). SCAMPI - Standard CMMI Assessment Method for Process Improvement. Pittsburgh, PA. Software Engineering Institute. CMU/SEI-2000-TR-009, ESC-TR-2000-009. 86 pgs.

This document describes the Standard CMMI Assessment Method for Process Improvement (SCAMPI). This document explains the role of assessments in the context of the IDEAL (Initiating, Diagnosing, Establishing, Acting, Leveraging) approach to software process improvement. The SCAMPI method is based on the CMM-Based Appraisal for Internal Process Improvement (CBA IPI) V1.1 assessment method [Dunaway 96b] and the Electronic Industries Alliance/Interim Standard (EIA/IS) 731.2 Appraisal Method [EIA 98b]. SCAMPI satisfies the Assessment Requirements for CMMI (ARC) V1.0 [SEI 00a] and is a Class A assessment method 2. This method helps an organization gain insight into its process capability or organizational maturity by identifying strengths and weaknesses of its current processes relative to one or more of the CMMI models. Guidelines are provided for establishing resource requirements for conducting a SCAMPI assessment.

[19] Cooper, J., Fisher, M., and Sherer, S.W. (Eds.) (1999). Software Acquisition Capability Maturity Model (SA-CMM) Version 1.02. Pittsburgh, PA. Software Engineering Institute: 168 pgs.

Government and industry have the need to improve the maturity of their internal software acquisition processes. In order for organizations to make improvements, they must know the ultimate goal and what is required to achieve that goal. Additionally, progress toward achieving the goal must be measurable. A capability maturity model provides the framework needed to facilitate the desired improvement. The Software Acquisition Capability Maturity Model (SA-CMM) has been developed to provide such a framework. This new version incorporates change requests that have been received, as well as the results of lessons learned from conducting appraisals and from the use of Version 1.01.

[20] Curtis, B., Hefley, W.E., and Miller, S. (1995). Overview of the People Capability Maturity Model. Pittsburgh, PA. Software Engineering Institute: 77 pgs.

This document provides an overview and an introduction to the People Capability Maturity Model (P-CMM) [Curtis95]. Specifically, this document defines the concepts necessary to understand the P-CMM and the motivation and purpose behind the P-CMM. This overview describes the P-CMM structural components, consisting of key process areas within the five maturity levels of the P-CMM, and the principles that underlie each of the maturity levels. Finally, the document addresses potential uses of the P-CMM in assessing organizational practice or guiding improvement of an organization's workforce capability.

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[21] Curtis, B., Hefley, W.E., and Miller, S. (1995). People Capability Maturity Model. Pittsburgh, PA. Software Engineering Institute: 444 pgs.

To provide guidance to organizations that want to improve the way they address these people-related issues, the SEI has developed the People Capability Maturity Model SM (P-CMMsm). The P-CMM is a maturity framework, patterned after the structure of the CMM, that focuses on continuously improving the management and development of the human assets of a software or information systems organization. The P-CMM provides guidance on how to continuously improve the ability of software organizations to attract, develop, motivate, organize, and retain the talent needed to steadily improve their software development capability.

[22] Dunaway, D. K., Seow, M.L., and Baker, M. (April 2000). Analysis of Lead Assessor Feedback for CBA IPI Assessments Conducted July 1998 - October 1999. Pittsburgh, PA. Software Engineering Institute. CMU/SEI-2000-TR-005, ESC-TR-2000-005. 45 pgs.

This document consolidates and analyzes information from Lead Assessor Requirements Checklists that were submitted by Lead Assessors in assessments conducted using the Capability Maturity Model - Based Appraisal for Internal Process Improvement (CBA-IPI) method. A total of 83 Lead Assessor Requirements Checklists were completed and submitted between July 1998 and October 1999. This document is organized based on the format of Lead Assessor Requirements Checklists, which are grouped in four major sections, as (a) Planning the assessment, (b) conducting the assessment, (c) reporting results, and (d) additional questions. The findings for each of these major sections are presented in the chapters and within each chapter an analysis of the results for each question that is significant or meaningful is presented.

[23] Dunaway, D. K., and Masters, S. (1996). CMMsm-Based Appraisal for Internal Process Improvement (CBA IPI): Method Description. Pittsburgh, PA. Software Engineering Institute: 57 pgs.

This document is a high-level overview of the CMMsm-Based Appraisal for Internal Process Improvement (CBA IPI) V1.1 assessment method. It provides a brief history of SEI appraisal methods, as well as establishing appraisals in the context of the IDEALsm approach to software process improvement. CBA IPI is a diagnostic tool that supports, enables, and encourages an organization's commitment to process improvement. The method helps an organization gain insight into its software development capability by identifying strengths and weaknesses of its current processes related to the Capability Maturity Model(sm) for Software V1.1. The method focuses on identifying software improvements that are most beneficial, given an organization's business goals and current maturity level. Brief descriptions of the method activities, roles, and responsibilities are provided. In addition, guidelines are provided for establishing resource requirements for conducting a CBA IPI. The SEI Appraiser Program is discussed, detailing the requirements for persons qualified to lead CBA IPIs.

[24] Garcia, S. M. Evolving Improvement Paradigms: Capability Maturity Models and ISO/IEC 15504 (PDTR). Pittsburgh, PA. Software Engineering Institute. 12 pgs.

This paper describes the evolution of the structure and representation of Capability Maturity Models(sm) and various components of the ISO/IEC 15504 (PDTR) product set, formerly known as "SPICE"--Software Process Improvement and Capability dEtermination.

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"15504" will be used as shorthand for the product set encompassed by the 15504 project. The paper focuses on historical, structural, and conceptual evolution of the two product types.

[25] Hefley, W. E., and Curtis, B. (1998). People CMM® -Based Assessment Method Description Version 1.0. Pittsburgh, PA. Software Engineering Institute: 103 pgs.

This document provides a high-level overview of the People Capability Maturity Model SM (CMM®)-Based Assessment Method. It introduces the People CMM as a source of guidelines for improving the capability and readiness of an organization's workforce in the context of the IDEAL(sm) approach to process improvement. In order to measure the capability and maturity of an organization's workforce practices, an appraisal method has been developed for the People CMM. This document describes the requirements and methods for the People CMM-Based Assessment Method. This method is a diagnostic tool that supports, enables, and encourages an organization' s commitment to improving its ability to attract, develop, motivate, organize, and retain the talent needed to steadily improve its organizational capability. The method helps an organization gain insight into its workforce capability by identifying strengths and weaknesses of its current practices related to the People CMM. The method focuses on identifying improvements that are most beneficial, given an organization' s business goals and current maturity level. Brief descriptions of the method activities, roles, and responsibilities are provided. The SEI Appraiser Program is discussed, detailing the requirements for persons qualified to lead People CMM-Based Assessments.

[26] Humphrey, W. S., and Sweet, W.L. (September 1987). A Method for Assessing the Software Engineering Capability of Contractors, Preliminary Version. Pittsburgh, PA. Software Engineering Institute. CMU/SEI-87-TR-23, ESD-TR-87-186. 40 pgs.

This document provides guidelines and procedures for assessing the ability of potential DoD contractors to develop software in accordance with modern software engineering methods. It includes specific questions and a method for evaluating the results.

[27] Masters, S., and Bothwell, C. (1995). CMM Appraisal Framework, Version 1.0. Pittsburgh, PA. Software Engineering Institute: 76 pgs.

This technical report describes version 1.0 of the CMM Appraisal Framework (CAF). This framework describes the common requirements used by the CMM-Based Appraisal (CBA) project in developing appraisal methods based on the Capability Maturity Model (CMM) for Software, Version 1.1 [Paulk 93a]. The CAF provides a framework for rating the process maturity of an organization against the CMM. The CAF includes a generic appraisal architecture for CMM-based appraisal methods and defines the requirements for developing CAF compliant appraisal methods.

[28] Miller, S. (2000). People Capability Maturity Model ® Baseline Maturity Profile. Pittsburgh, PA. Software Engineering Institute.

Slide Presentation consists of the following: People Capability Maturity Model v1.0 released in September 1995, First People CMM Assessment conducted in March 1996, There are eight SEI-Authorized People CMM Lead Assessors, and 85 Individuals have applied to become People CMM Lead Assessors.

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[29] Paulk, M. C., Curtis, B., Chrissis, M.B., and Weber, C.V. Capability Maturity Model(sm) for Software, Version 1.1. Pittsburgh, PA, Software Engineering Institute: 82 pgs.

This paper provides a technical overview of the Capability Maturity Model for Software and reflects Version 1.1. Specifically, this paper describes the process maturity framework of five maturity levels, the structural components that comprise the CMM, how the CMM is used in practice, and future directions of the CMM.

[30] Whitney, R., Nawrocki, E., Hayes, W., and Siegel, J. (March 1994). Interim Profile-Development and Trial of a Method to Rapidly Measure Software Engineering Maturity Status. Pittsburgh, PA, Software Engineering Institute.

Development of an interim profile (IP) method was driven by a business need to rapidly measure an organization's software engineering process maturity between organizational software process assessments (SPAs). This document provides information about the process used to develop the method and a description of the method to software engineering process group (SEPG) members and practitioners responsible for diagnosing software process maturity. This document also addresses the next steps in the further development and use of the interim profile method.

[31] Zubrow, D., Hayes, W., Siegel, J., and Goldenson, D. (June 1994). Maturity Questionnaire. Pittsburgh, PA. Software Engineering Institute. CMU/SEI-94-SR-7.

This questionnaire focuses solely on process issues, specifically those derived from the CMM. The questionnaire is organized by KPAs and covers all 18 KPAs of the CMM. It addresses each KPA goal in the CMM but not all of the key practices. This document covers the software process maturity questionnaire, a placard providing instructions on the response options for the questions and a glossary.

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MODELS AND ASSESSMENT METHODS
Other

[32] Abrardo, A., Caldelli, R., Cowderoy, A., Donaldson, J., Granger, S., and E. and Veenendaal (1998). The MultiSpace Application Priorities, ESPRIT Project 23066: 59 pgs.

In the context of multimedia development, the quality of multimedia systems and titles can be defined in terms of a series of 21 quality sub-characteristics, each of which is measurable. Suggestions are made of which quality sub-characteristics are likely to be important for 7 different cases. In the context of multimedia, the interpretation of quality needs to pay special attention to motivation, cost and interconnectivity. Issues concerning involvement and training are especially important for the author and content specialists. The production of multimedia involves a diverse range of organizations, project types, users, and technologies. A scheme is proposed for classifying these. In the case of users, this needs to address both stereotyping and classification.

[33] Baldridge National Quality, P. (2000). Criteria for Performance Excellence: 60 pgs. http://www.quality.nist.gov

The Malcolm Baldridge Criteria for Performance Excellence are the basis for organizational self-assessments, for making Awards, and for giving feedback to applicants. In addition, the Criteria have three other important roles in strengthening U.S. competitiveness: to help improve organizational performance practices and capabilities; to facilitate communication and sharing of best practices information among U.S. organizations of all types; and to serve as a working tool for understanding and managing performance, and guiding planning and training.

[34] Chapman, P., Kerber, R., Clinton, J., Khabaza, T., Reinartz, T., and Wirth, R. (1999). The CRISP-DM Process Model: 99 pgs.

The CRISP-DM data mining methodology is described in terms of a hierarchical process model, consisting of sets of tasks described at four levels of abstraction (from general to specific): phase, generic task, specialized task, and process instance. At the top level, the data mining process is organized into a number of phases; each phase consists of several second-level generic tasks. This second level is called generic, because it is intended to be general enough to cover all possible data mining situations. The generic tasks are intended to be as complete and stable as possible. Complete means covering both the whole process of data mining and all possible data mining applications. Stable means that the model should be valid for yet unforeseen developments like new modeling techniques. The third level, the specialized task level, is the place to describe how actions in the generic tasks should be carried out in certain specific situations. For example, at the second level there might be a generic task called clean data. The third level would describe how this task differed in different situations, such as cleaning numeric values versus cleaning categorical values, or whether the problem type is clustering or predictive modeling. The description of phases and tasks as discrete steps performed in a specific order represents an idealized sequence of events. In practice, many of the tasks can be performed in a different order and it will often be necessary to repeatedly backtrack to previous tasks and repeat certain actions. This process model does not attempt to capture all of these possible routes through the data mining process because this would require an overly complex process model. The fourth level, the process instance, is a record of the actions, decisions, and results of an actual data mining engagement. A process instance is organized

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according to the tasks defined at the higher levels, but represents what actually happened in a particular engagement, rather than what happens in general.

[35] Cooper, J, Fisher, M., and Sherer, S.W. (April 1999). Software Acquisition Capability Maturity Model (SA-CMM) Version 1.02. *Software Engineering Institute, Carnegie Mellon University, CMU/SEI-99-TR-002, ESC-TR-99-002*, 158 pgs.
http://www.sei.cmu.edu/pub/documents/99.reports/pdf/99tr002.pdf

Government and industry have the need to improve the maturity of their internal software acquisition processes. In order for organizations to make improvements, they must know the ultimate goal and what is required to achieve that goal. Additionally, progress toward achieving the goal must be measurable. A capability maturity model provides the framework needed to facilitate the desired improvement. The Software Acquisition Capability Maturity Model (SA-CMM) has been developed to provide such a framework. This new version incorporates change requests that have been received, as well as the results of lessons learned from conducting appraisals and from the use of Version 1.01.

[36] Cowderoy, A. (1998). Final Report of the MultiSpace Project: 11 pgs.
www.brameur.co.uk/qpi/projects/multispace/
www.mmhq.co.uk/mmhqeurope/multispace/

The MultiSpace project has demonstrated that practices for defining and improving quality developed in engineering disciplines can be adapted and applied to the production of multimedia. Guidelines are now publicly available (and commercially) for methods and instruments have been produced. Commercial opportunities have been created exploiting "multimedia quality" in the form of specification, evaluation and management services. Early uptake of the quality-oriented methods give a competitive advantage. A new marketing company has been established as a result of MultiSpace. Europe now has a head start in this area, but work is now needed on new methods, standards development and dissemination actions such as the new Center for MultiMedia Quality resulting from the project.

[37] Customer Operations Performance Center (2000). COPC-2000 Standard: External Customer Service Provider, Release 3. Amherst, Customer Operations Performance Center, Inc. 48 pgs.

The COPC-2000® Standard is used globally by both buyers (clients) and providers of customer-contact and fulfillment services (collectively called customer-service providers, or CSPs) to improve the service quality provided to end-users and to reduce costs. Clients use the Standard for developing Requests for Proposals from CSPs, selecting CSPs, and managing their relationships with CSPs. CSPs use the Standard for assessing and improving their processes and performance. While not a guarantee of success, experience has shown that CSPs who adopt the Standard achieve higher service and quality levels, and lower costs (than competitors). CSPs include: Customer-contact centers: Operations that interact with end users via phone (i.e., call centers), electronic means (i.e., e-commerce centers), or traditional mail or fax. Fulfillment centers: Operations that perform assembly and pick, pack, and ship activities. The Standard is used by both internal CSPs (i.e., those that interact with their company's own end users) and third-party CSPs (i.e., those that interact with the end users of their clients). The version presented here is for third-party CSPs. Additional versions exist for internal CSPs, healthcare CSPs, and e-commerce providers.

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[38] Daily, K., and Cowderoy, A. (Eds.) (1997). The MultiSpace Quality Framework, ESPRIT Project 23066: 138 pgs.

The MultiSpace Framework describes what is meant by "multimedia quality" and considers the philosophy used in the construction of multimedia products. By following the various principles and methods described in the Framework, existing and new multimedia producers are able to ensure that their work will achieve higher quality. Quality Management is considered in terms of the good practice that may be developed with objective and target setting, evaluation and improved working processes. The different characteristics of end-users may be established and described, and their different needs and expectations can be assessed. These provide input to the definition of a set of quality objectives that satisfy the needs of the end-user, the content providers, the multimedia developer and their client (the publishing entity). The quality targets for individual activities are expressed in terms of " external" quality characteristics, which may be evaluated without any reference to the internal workings of the product, and various internal measures of the content and functionality.

[39] Donaldson, J. (1998). Report on the Promotion of Intellectual Debate, MultiSpace Workpackage WP7. Technology Transfer: 7 pgs.

As intellectual debate is needed to validate new ideas, stimulate new research and assist commercial exploitation, The MultiSpace project has made it a priority to ensure that its results and findings have been given suitable public exposure in the appropriate forums for such research. MultiSpace has produced 16 papers, several of which have already been published or presented world-wide. Workshops have been convened to allow public debate on the project's findings and there is evidence of the project having had a discernible influence on experts in the area of cultural multimedia.

[40] Dorling, A. (1995). Software Process Assessment - Parts 1 - 9, Version 1.00 (Formerly IG Version 1.00).
http://www-sqi.cit.gu.edu.au/spice/

The SPICE Project, Version 1.0, an International Standard, provides a framework for the assessment of software processes and consists of the following titles: Part 1: Concepts and introductory guide, Part 2: A model for process management, Part 3: Rating processes, Part 4: Guide to conducting assessment, Part 5: Construction, selection and use of assessment instruments and tools, Part 6: Qualification and training of assessors, Part 7: Guide for use in process improvement, Part 8: Guide for use in determining supplier process capability, Part 9: Vocabulary.

[41] Earthy, J. (1999). Usability Maturity Model: Processes, Version 2.2 (Trump Version): 86 pgs.

A process model for human-centred activities in the system lifecycle based on ISO 13407, the British HCI Group ISM, the Philips HPI model and Eason and Harker's human system maturity model. The background to the model is described. The model describes seven processes each defined by a set of base practices. The base practices are defined. A set of work products are given for each process. A summary is provided of the ISO 15504 scale for the assessment of the maturity of processes. The uses of the model are outlined. A recording form is supplied and its use described. Mappings of the base practices to processes in SPICE, CMM

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and SE-CMM are provided. The process model is conformant to ISO 15504. This version is prepared for INTERACT'99.

[42] Earthy, J. (1998). Usability Maturity Model: Human Centredness Scale, Version 1.2, Information Engineering Usability Support Centres: 34 pgs.

An organizational human-centredness maturity scale based on Flanaghan's Usability Leadership scale, Sherwood-Jones' Total System maturity model and ISO 13407. The background to the scale is described. The scale has six levels defined by a set of attributes. Each attribute is defined by one or more management practices performed at that level. The management practices are defined. The uses of the scale are outlined. A recording form is supplied and its use described. Some indicators of personal attitude at each level are given. The scale is conformant to ISO 15504. This version specially prepared for the TRUMP project.

[43] Muns, R. (2000). Certified Support Center Model and Standards Document, Draft Version 8.0, Help Desk Institute: 23 pgs.
www.HelpDeskInst.com

HDI's Certified Support Center (CSC) program has been designed to conform to existing international quality standards, such as the EFQM (European Foundation for Quality Management), the Malcolm Baldridge National Quality Awards, and ISO9000. The model is based upon the European Foundation for Quality Management (EFQM) framework, with modifications to adapt the standards to be specific to the quality standards requirements of support center organizations. This includes eight model elements with standards within each element. The CSC standards are analogous to ISO9000 in that they require quality processes and procedures.

[44] Niessink, F., and van Vliet, H. (December 1999). The Vrije Universiteit IT Service Capability Maturity Model. *Vrije Universiteit Amsterdam Technical Report IR-463, Release L2-1.0*, 77 pgs.

This document describes the Vrije Universiteit Information Technology Service Capability Maturity Model, or IT Service CMM for short. The IT Service CMM is a capability maturity model that specifies different maturity levels for organizations that provide IT services. Examples of IT services are the maintenance of software systems, operation of information systems, the management and maintenance of workstations, networks or mainframes, or the provision of contingency services. An important question is how these services should be defined and managed. The complexity of IT applications makes it difficult to properly tune customer requirements and service provider capabilities. Customers often cannot express their real service requirements and do not know the corresponding performance needs. Likewise, service providers often do not know how to differentiate between IT services and how to attune them to a specific customer. The IT Service CMM is aimed at enabling IT service providers to assess their capabilities with respect to the delivery of IT services and to provide IT service providers with directions and steps for further improvement of their service capability.

[45] Olson, T. G., Humphrey, W.S., and Kitson, D.H. (February 1989). Conducting SEI-Assisted Software Process Assessments. Pittsburgh, PA. Software Engineering Institute. CMU/SEI-89-TR-7, ESD-TR-89-07. 52 pgs.

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This report describes software process assessment as it is performed in organizations with the assistance of the Software Engineering Institute (SEI). A software process assessment is an appraisal or review of an organization's software process (e.g., software development process). The main objectives of such as assessment are to understand the state of practice in an organization, to identify key areas for improvement, and to initiate the actions that facilitate those improvements. This report is specifically addressed to the organizations and assessment team members that may be involved in the SEI-assisted software process assessment.

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OUTSOURCING

[46] ---------- (November/December 1995). And now for something different…Users speak out on Outsourcing. *InfoServer*.

Customers and potential customers attending InfoServer's 2nd Annual Conference shared a strong interest in what could be called the 3Ms of outsourcing: management, measurement, and mercy.

[47] ---------- (1996). Electronic College of Process Innovation - Index of Articles and Case Studies. http://www.c3i.osd.mil/bpr/bprcd/mltc040.htm

The topic for this electronic source is Strategic Alliances and Partnering, covering the following subjects: Case Studies, Concepts, How-To, Interviews, Lessons Learned, Research, and Tools.

[48] ---------- (2000). "Managing Vendors: Tips for Success." *Harvard Business Review*: 1. http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?U0003C

With the growth of outsourcing, more and more businesspeople are responsible for managing relationships with suppliers. But what happens when the vendor doesn't deliver on time? What happens when it screws up on quality? Disaster can be avoided by managing your vendor as if it were a department in your company, making sure the contract allows you to get the information you need to judge the vendor's performance, and monitoring the relationship and changing the contract as necessary. Includes a sidebar entitled "When Things Go Wrong."

[49] ---------- Outsourcing Strategies, Volumes 1 and 2. http://www.bestpractice.haynet.com/reports/outsrc.html

As a follow-up to The UK Outsourcing Report, Management Today and Market Tracking International have added a substantial and detailed supplementary report covering all aspects of outsourcing IT, from the operating environment and key drivers on how to manage the IT outsourcing process, providing up-to-date and succinct case studies across a variety of market sectors. The IT Outsourcing Supplementary Report aims to build on the material in Volume One and provide more detailed coverage of this topical and far-reaching subject.

[50] ---------- (1997). The Decision to Outsource - An Australian Government Report, The Parliament of the Commonwealth of Australia, Senate Finance and Public Administration References Committee.
http://www.aph.gov.au/senate/committee/fapa_ctte/outsourcing/ch1_0.htm

The ever growing pressure on governments throughout the 1980s and 1990s to control public expenditure has focused attention on outsourcing. Much of the evidence to the committee tended to argue for or against outsourcing almost as a matter of principle. The committee observes that such an approach is not helpful. In practice, outsourcing is just one option available to managers to pursue their agencies' objectives. In the specific area of IT the Commonwealth already sources a significant proportion of goods and services from the private sector. Virtually all hardware and a large proportion of software is purchased from the private sector and a proportion of other services - applications development, maintenance, training, help desk

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services - are also provided by private contractors. Thus, particularly with regard to the supply of hardware, the government's IT outsourcing initiatives represent a change of process from a decentralized agency focused model to a consolidated, integrated, service wide approach rather than a dramatic shift from public to private provision. This is not to suggest that the changes underway are not significant. The scale of outsourcing is greater than anything previously undertaken in the Australian IT market. The provision of services to agencies by private contractors where they were previously provided internally by the agencies' own employees represents a major change in the way the public sector works.

[51] ---------- (April 1995). The Smart Vendor Audit Checklist. *Inc*.

Four years ago, hot tub builder Softub contracted out the assembly of the motor, pump, and control unit that provides the heat and jet action for the hot tubs. Chief executive Tom Thornbury felt comfortable about the vendor after meeting with the owner twice and because other customers raved about it. It was not long before equipment failures surfaced during testing and in customers' homes. Two years ago, after several other incidents involving substandard parts, Softub decided to do things differently. The big change was an audit team, led by purchasing agent Gary Anderson, which goes out to grill vendor candidates. To ensure that the audits would be effective, Anderson designed a vendor audit survey form which acts primarily as a check-list. The form forces the team to focus on specific areas so the team does not forget anything when it is on a visit. The payoff is that Softub is recruiting a better breed of supplier.

[52] Achstatter, G.A. (August 19, 1997). Executive Update. *Investors Business Daily*.

According to the May/June, 1997 issue of Banking Strategies, people, in addition to technology, make the difference between successful outsourcing and the also-rans. Certain factors are critical to the management of outsourcing companies. The company must be willing to invest the necessary resources to train the company's employees in the working of the vendor's new system. The vendor should provide timely answers and support when the customer requires service. The customer or the vendor should have plans in place to conduct annual performance audits, or reviews, under the new system.

[53] Anthes, G.H. (April 7,1997). Net Outsourcing, A Risky Proposition. *Computer World*.

Internet outsourcing is inherently difficult to manage because of its rapid rate of change and inadequately defined electronic commerce company strategies. There are several views that should help manage this type of contract. Sajoo Samuel, an Assistant Vice President of the First Chicago Trust in Jersey City, N.J., makes the outsourcing strategy work through close day-to-day management of the external relationships. An internal project manager works with the outsourcers daily while serving as liaison with internal business units. The project manager and outsourcer follow a schedule they have jointly committed to. When outsourcing to multiple vendors, policies must be in place for change management, that is, who will accept changes from whom. Attention must be paid to contract terms and service level guarantees.

[54] Applegate, L. M., and Collura, M. (January 3, 2001). Amazon.com—2000. *Harvard Business Review #801194*, 23 pgs.
http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?801194

Enables a thorough analysis of Amazon.com and the company’s value proposition, in terms of its business concept, digital business capabilities, and community and shareholder

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value. Examines the company's complex set of business models and web of business relationships, as well as Amazon's plan to monetize (generate revenues and earnings through) its assets.

[55] Applegate, L. M., and Davis, K. (1995). "Xerox: Outsourcing Global Information Technology Resources." *Harvard Business Review* 9-195-158: 31 pgs.
http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?195158

In order to increase revenues, develop new technologies, and manage information technology more efficiently, Xerox decided to sign a 10-year, $3.2 billion contract with Electronic Data Systems (EDS). This case describes the events that preceded Xerox's decision to outsource information technology.

[56] Autor, D. H. (2000). Outsourcing at Will: Unjust Dismissal Doctrine and the Growth of Temporary Help Employment. Cambridge, MA, National Bureau of Economic Research: 51 pgs.
http://www.nber.org/papers/w7557

The U.S. temporary help services (THS) industry grew at 11 percent annually between 1979 – 1995, five times more rapidly than non-farm employment. Contemporaneously, courts in 46 states adopted exceptions to the common law doctrine of employment at will that limit employers' discretion to terminate workers and opened them to litigation. This paper assesses whether the decline of employment at will and the growth of THS are causally related. To aid the analysis, the paper considers a simple model of employment outsourcing, the primary implication of which is that firms will respond to externally imposed firing costs by outsourcing positions requiring the least firm-specific skills rather than those with the highest expected termination costs. The empirical analysis indicates that one class of exception, the implied contractual right to ongoing employment, led to 14 – 22 percent excess temporary help growth in adopting states. Unjust dismissal doctrines did not significantly contribute to employment growth in other business service industries. Temporary help employment is closely correlated with union penetration, with states experiencing the least rapid decline in unionization undergoing substantially faster THS growth. The decline of employment at will explains as much as 20 percent of the growth of THS between 1973 – 1995 and accounts for 336,000 to 494,000 additional workers employed in THS on a daily basis as of 1999.

[57] Balaguer, N. S. (1990). "Sears, Roebuck and Co.: Outsourcing Within the Company (A)." *Harvard Business Review* 9-191-015: 18 pgs.
http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?191015

In early 1988, Charles Moran, CIO of Sears, Roebuck and Co. was reviewing the evolution of communications and data processing activities at Sears. Recognition of communications network consolidation opportunities across its diverse and highly autonomous business groups (Sears Merchandising, Allstate Insurance, Dean Witter, and Caldwell Banker) in the early 1980s had led the company to form the highly successful Sears Communication Network (SCN) in 1983. During the past five years, the network contributed to lowered unit costs, improved service, reliable and expandable capability, and timely development of new applications. Now, Moran and his colleagues were contemplating data processing consolidation opportunities across business groups. The key was whether the business groups would agree to a

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centrally-managed utility and concentrate their information technology efforts on business applications development activities.

[58] Balaguer, N. S. (1990). "Sears, Roebuck and Co.: Outsourcing Within the Company (B)." *Harvard Business Review* 9-191-016: 3 pgs.
http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?191016

Describes the challenges faced by Charles Carlson, president of Sears Technology Services, Inc. (STS). STS was the result of Charles Moran's data processing consolidation activities for three of Sears' four business groups. Leaves students with two questions: How does one implement a corporate utility concept in a highly decentralized and autonomous organization; and how does one make STS a viable and valuable organization for the Sears family?

[59] Balaguer, N. S. (1990). "Sears, Roebuck and Co.: Outsourcing Within the Company (C)." *Harvard Business Review* 9-191-017: 1 pg.
http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?191017

Describes the results of data consolidation efforts by Sears Technology Services, Inc. (STS). Provokes discussion of the drawbacks associated with concentrating one's efforts on consolidation activities in lieu of more strategic activities when financial pressures dictate cost savings. Leaves students with a series of questions: 1) How does one ensure that STS is recognized by the business groups as more than a corporate data processing utility? 2) How should Carlson balance his organization's resources in relation to the data consolidation efforts and the role of technology leaders? and 3) What goals should he communicate to the chairman of Sears for STS for the 1990s?

[60] Baldwin, C. Y., and Clark, K.B. (1997). "Managing in an Age of Modularity." *Harvard Business Review*: 10 pgs.
http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?97502

Modularity is a familiar principle in the computer industry. Different companies can independently design and produce components, such as disk drives or operating software, and those modules will fit together into a complex and smoothly functioning product because makers obey a given set of design rules. As businesses as diverse as auto manufacturing and financial services move toward modular designs, the authors say, competitive dynamics will change enormously. Leaders in a modular industry will control less, so they will have to watch the competitive environment closely for opportunities to link up with other module makers. They will also need to know more: engineering details that seemed trivial at the corporate level may now play a large part in strategic decisions. Leaders will also become knowledge managers internally because they will need to coordinate the efforts of development groups in order to keep them focused on the modular strategies the company is pursuing.

[61] Barrett, R. (1996). Outsourcing Success Means Making the Right Moves, *Reengineering Resource Center*, The Outsourcing Institute.
www.reengineering.com/articles/jul96/InfoManagement.html

Stand inside the information management department of any large organization and you'll hear the mantra: outsource, outsource, outsource. Depending on how you approach it, off-loading

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your infotech work can bring big benefits, or total disaster. The article discusses what it found to be the Top 10 Reasons for Outsourcing: 1) Improve Company Focus, 2) Gain Access to World-Class Capabilities, 3) Accelerate Reengineering Benefits, 4) Shared Risks, 5) Free Resources for Other Purposes, 6) Make Capital Funds Available, 7) Cash Infusion, 8) Reduce Operating Costs, 9) Resources Not Available Internally, and 10) Out of Control.

[62] Bloch, M., and Pigneur, Y. (1995). The Extended Enterprise: A Descriptive Framework, Some Enabling Technologies and Case Studies in the Lotus Notes Environment, University of Lausanne, HEC-INFORGE, TR YP-91.
http://www.stern.nyu.edu/~mbloch/docs/paper_ee/paper_ee.htm

Information gathering, in-the-field working, virtual corporations, close links with customers and suppliers, extension of distribution and marketing channels, electronic markets, information malls, ... Inter-organizational systems are numerous and multi-form. This paper adopts and refines a framework to classify and analyze these forms of inter-organizational systems. It mainly distinguishes what happens (1) at the boundary of the firms, (2) in their relations with their customers and suppliers, and (3) on the markets they reach. This paper shows how information and communication technologies (ICT) can change the art of the so-called extended enterprises. Two such technologies, well adapted for inter-enterprise and extra-enterprise systems building are briefly reviewed: Lotus Notes and the Internet. Finally, cases are exposed illustrating inter-enterprise systems using Lotus Notes, based on information gathering systems, IT-enabled partnerships for a cross-organizational project team, a customer support service, and an electronic catalogue.

[63] Borthick, S.L. (June 1995). The Ins and Outs of Outsourcing. *Business Communication Review*.

Nearly 2/3 of the respondents to a Business Communications Review Magazine outsourcing survey are currently outsourcing at least one telecommunications function, and 2/3 of that group are considering outsourcing at least one more. Respondents named more than 30 outsourcing vendors, including AT&T, IBM, and Norstan. Few organizations are relinquishing their entire operation to one outsourcing vendor, instead they parcel out specific responsibilities to multiple vendors under multiple contracts. The top 5 tasks or functions being outsourced today include: 1. end user voice equipment management, 2. data center operations, and 3. voice systems equipment management. Respondents agreed that an outsourcing contract should be as detailed as possible, with specific performance criteria. According to respondents, 3 years is the favored maximum contract length.

[64] Bragg, S. M. (1998). Outsourcing: A Guide to -- Selecting the Correct Business Unit -- Negotiating the Contract -- Maintaining Control of the Process. New York, NY, John Wiley & Sons, Inc.

This book is designed to meet the needs of the company that wants to know the "nuts and bolts" of how to outsource any (or all) of its functions. It begins by discussing the strategic reasons for outsourcing a function, how to go about selecting a supplier who can take over a function, what should be included in the contract with the supplier, how to manage the supplier, and how to account for transactions with the supplier. The next section of the book discusses how to outsource all of the functions of a typical company, ranging from accounting to computer systems, manufacturing, and human resources, along with many other functions.

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[65] Brainov, S., and Sandholm, T. (1999). Contracting with Uncertain Level of Trust. Proceedings of the First ACM Conference on Electronic Commerce, Denver, CO.
http://www.acm.org/pubs/citations/proceedings/ecomm/336992/p15-brainov/

This paper investigates the impact of trust on the form and the terms of contracts. A formal model of a bilaterial game between a buyer and a seller is presented. The paper focuses on the case where the level of trustworthiness of the buyer is uncertain. It is shown that if the seller's trust equals the buyer trustworthiness, then the social welfare, the amount of trade and the agents' utility functions are maximized. It is demonstrated that underestimating the buyer's trustworthiness tends to harm both agents. The role of advance payment contracts for improving trustworthiness is discussed. It is shown that in the case where the buyer is distrusted, advance payment contracts are efficient in terms of amount of trade and social welfare. It is proved that in this case both agents prefer an advance payment contract to a standard uncertain payment contract. Advance payment F-contracts are proposed. It is proved that these contracts are incentive compatible and that they eliminate inefficiencies caused by asymmetric information about trust.

[66] Burnett, R. (1998). Outsourcing IT - The Legal Aspects, Gower.

Outsourcing has been described as 'one of the big issues of the decade for the computer industry' and this book is about the principal features which should be considered in drawing up and managing contracts for outsourcing information technology and information systems. Its purpose is to help business managers to understand the key factors involved in the legal agreement, both for organizations which are considering outsourcing and for organizations which provide outsourcing.

[67] Caldwell, B., and Kolbasuk McGee, M. (1997). Outsourcing Backlash -- Many companies aren't getting what they wanted from their outsourcing deals. Some are so disillusioned that they're bringing IT back in-house. *Information Week*, CMP Media, Inc.
http://www.techweb.com/se/directlink.cgi?IWK19970929S0018

After years of big promises and even bigger deals, the IT outsourcing backlash has arrived. Many users say wholesale outsourcing hasn't lived up to its promise. Some are so frustrated that they're canceling long-term deals and going through the painful process of rebuilding their in-house IT operations.

[68] Caldwell, B., Violino, B., and Kolbasulk McGee, M. (1997). Hidden Partners, Hidden Dangers -- Security and service quality may be at risk when your outsourcing vendors use subcontractors, *Information Week*, CMP Media, Inc.
http://www.techweb.com/se/directlink.cgi?IWK19970120S0039

One day last September, E-mail was mysteriously knocked out at the headquarters of Textron Inc., a $9 billion aerospace company. The culprit, Textron believes, was an employee of a subcontractor to Textron's primary IT outsourcing vendor, EDS Corp. The employee, Textron and EDS officials now allege, intentionally distributed hundreds of copies of a virus-infected document to Textron employees, ultimately forcing the company to bring down its E-mail system. Textron and EDS have since filed felony charges against the employee. As IS managers at DuPont, General Motors, Zale, and other companies are learning, too many outsourcing cooks

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can spoil the broth. Double outsourcing-subcontracting an outsourcing contract-can backfire if not properly managed. Outsourcing vendors in search of hard-to-find technical skills often subcontract portions of their computer-system work to small, often unknown companies-and they sometimes do it without the knowledge of the IS managers who are their clients. In fact, an average of 36% of an outsourcing contract and 25% of a systems integration contract involve subcontractors, ac-cording to International Data Corp., a market research firm in Framingham, Mass. More than 15% of 55 IS managers surveyed by InformationWeek in December say their outsourcing vendors don't notify them when they subcontract; nearly 10% say they don't know whether they are notified. Along with these contracts can come problems, including viruses brought in by outsiders, poor communication, high costs, and low-quality service. IS organizations are still learning how best to manage double-outsourcing arrangements. Some have come up with creative measures to nip problems in the bud, including crafting direct contracts with multiple services vendors and retaining the right to co-negotiate with all IT suppliers.

[69] Caldwell, B. (1997). CIO Group With Clout -- Exclusive group holds $60 billion in outsourcing deals, *Information Week*, CMP Media, Inc.
http://www.techweb.com/se/directlink.cgi?IWK19970623S0066

A group of CIOs at 16 major companies with megadeal outsourcing contracts has quietly emerged as one of the most powerful user groups in the IT industry. The three-year-old group has about $60 billion worth of outsourcing contracts among its member companies. Outsourcing contracts at nine of the group's members are worth $1 billion or more, including General Motors Corp.'s 10-year, $40 billion contract with EDS. The organization, known as the International Information Technology Users Group Inc. (IITUG) and based in New York, will announce this week the results of its most recent officer elections. Thomas Conarty, director of IT at Bethlehem Steel Corp., was re-elected president, while Richard LeFave, CIO at telecom company SNET, was elected VP, and Steven Mercer, director of IS at McDonnell Douglas Corp., was elected secretary. The group has three primary goals, says Conarty. The first is to share information among its members for a better understanding of outsourcing on a global basis. The second is to freely discuss emerging trends and issues related to quality, technology deployment, and management practices. The third is to improve the efficiency and effectiveness of IT and "maybe share some of the technology risks and rewards," says Conarty.

[70] Carlin, B. A., Dowling, M.J., Roering, W.D., Wyman, J., Kalinoglou, J., and Clyburn, G. (1994). "Sleeping with the Enemy: Doing Business with a Competitor." *Business Horizons*, Indiana University Kelley School of Business: 7 pgs.
http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?BH017

How should a company behave in a "multifaceted relationship," when a supplier, customer, or partner is also a competitor? This dilemma is faced by a growing number of firms, especially in high-technology and global industries. Aside from technology and globalization, trends in regulation, diversification, product characteristics, and outsourcing often lead to these multifaceted relationships. What are the methods for managing them? One response is "stay away or get out," but avoiding or exiting complicated relationships can be costly. Another method is to "divide and conquer"; by carefully partitioning the separate modes of interaction with the other firm, the company can act as if the multifaceted relationship does not exist. An alternative approach is to "centralize intelligence," either by having different departments or divisions that interact with the competitor keep each other informed, or by creating a task force or committee whose function is to pool all information about the relationship. It is simplistic to

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urge all firms to launch blithely into multifaceted relationships; but when such relationships are inevitable, companies that learn to live with and benefit from them can stake out a better position for the future.

[71] Chidambaram, L., and Jones, B. (1993). "Impact of Communication Medium and Computer Support on Group Perceptions and Performance: A Comparison of Face-to-Face and Dispersed Meetings." *MIS Quarterly*: 465-491.

Economic, social, and political institutions worldwide are relying increasingly on communication technology to perform a variety of functions: holding electronic town meetings where hundreds of people in numerous cities participate simultaneously; forging strategic links with business partners, thereby forming "virtual corporations" that can be instantly disbanded; redefining the conventional notion of a college campus by offering classes via interactive media to non-traditional students; and enabling consumers with personal digital assistants to remain connected with their children and families at all times. In this environment, where geographic and temporal boundaries are shrinking rapidly, electronic meeting systems (EMS) are playing an important role. This study examines the impact on teams of using EMS in dispersed and face-to-face settings. The results suggest that EMS can be effective in augmenting traditional audio-conferencing by strengthening the medium and allowing additional communication cues to be exchange among participants. They also indicate that EMS can improve decision-making performance, given proper task-technology fit and adequate facilitation. As businesses expand globally, such systems will provide instant communication capabilities and help coordinate dispersed decision-making activities.

[72] Clemons, E. K., Reddi, S.P., and Row, M.C. (1993). "The Impact of Information Technology on the Organization of Economic Activity: The "Move to the Middle" Hypothesis." *Journal of Management Information Systems* 10(No. 2): 9-35.

Investments to increase the level of explicit coordination with outside agents have generally resulted in increased risk to the firm; firms have traditionally avoided this increased risk by becoming vertically integrated or by underinvesting in coordination. This paper argues that information technology (IT) has the ability to lower coordination cost without increasing the associated transactions risk, leading to more outsourcing and less vertically integrated firms. Lower relationship-specificity of IT investments and a better monitoring capability imply that firms can more safely invest in information technology for interfirm coordination than in traditional investments for explicit coordination such as co-located facilities or specialized human resources; firms are therefore more likely to coordinate with supplies without requiring ownership to reduce their risk. This enables them to benefit from production economies of large specialized suppliers. Moreover, rapid reduction in the cost of IT and reduction in the transactions risk of explicit coordination with suppliers. The resulting transaction economies of scale, learning curve effects, and other factors favor a move toward long-term relationships with a smaller set of suppliers. The authors call this combination - a move to more outsourcing, but from a reduced set of stable partnerships - the "move to the middle" hypothesis.

[73] Collins, J.S., and Millen, R.A. (Winter 1995). Information Systems Outsourcing by Large American Industrial Firms: Choices and Impacts. *Information Resource Management Journal*.

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Outsourcing is currently one of the most widely discussed topics in information systems (IS). However, little is known about outsourcing in general. A survey was mailed to the chief information officers of the 500 largest industrial firms in the US, with 110 responses obtained. The results indicated that the majority of the largest industrial firms in the US are not outsourcing IS services. Only one-quarter of these firms are considering doing so. Many of the firms that are outsourcing IS services have been doing so for less than 5 years and allocate less than 20% of their total corporate IS budget to outside firms. Most use the services of multiple providers and rely on these providers for a range of services. In about half of the cases, the initial interest in outsourcing IS began at the corporate level.

[74] Crow, K. (1996). Benchmarking Best Practices to Improve Product Development. Palos Verdes, CA, DRM Associates: 5 pgs.

In this era of "faster, cheaper and better", companies are focusing on improving the product development process. Some of the improvement opportunities are obvious to personnel within an organization. Other opportunities may not be obvious or there may be so many things to do that it becomes a question of where to start. In addition, management will typically have a number of questions in the back of their minds. How do we compare with the rest of industry? With the best in industry? What are our strengths and weaknesses? What improvements need to be made? Where do we start? What are our priorities given the resources that we have available? What benefits can we expect? How can we figure this out quickly so that we can get started?

[75] Dash, J. (January 2001). Business Process Outsourcing. *ComputerWorld 35*, pg. 43.

Business process outsourcing occurs when an organization turns over the management and optimization of a business function, such as accounts payable or purchasing, to a third party that conducts the activity based on a set of predetermined performance metrics.

[76] de Looff, L. A. (1997). Information Systems Outsourcing Decision Making: A Managerial Approach. Hershey, PA, IDEA Group Publishing.

Organizations are increasingly considering outsourcing part or all of their information systems activities to external suppliers. Today Information systems plays an important role in most organizations. The question of who is to provide these information systems is therefore very important, and outsourcing decisions have far-reaching, short and long-term consequences, both positive and negative. Some client organizations have very high expectations of outsourcing, fed by positive media attention and eloquent suppliers. Other clients doubt whether the improvements attributed to outsourcing will arise and fear that they will become overly dependent on external suppliers. The main conclusion of the research presented in this thesis is that outsourcing only leads to the improvements decision makers expect if specific conditions are fulfilled, and that it may otherwise even appear to be detrimental to the organizations. Improvements from outsourcing are never achieved automatically but must be supervised, and enforced if necessary, by the client organization. A model for information systems outsourcing decision making that managers can use during analysis of whether outsourcing will be sensible and beneficial for their organization is presented. The model is also intended to be used during the supplier selection process and to design and manage the outsourcing relationship. The model is based upon established and organizational theories and case study research. Recommendations

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from suppliers are given which can be used when developing marketing strategies and strategies for the acquisition and tendering process.

[77] De Rose, L. J. (1997). The Downside to Outsourcing, *Electronic Buyers' News*, CMP Media, Inc. http://www.techweb.com/se/directlink.cgi?EBN19970714S0100

To appreciate the growing acceptance of outsourcing as a basic business strategy, consider the fact that in 1996, U.S. companies spent $100 billion on outsourcing - more than double the amount spent in 1993. And by 2001, that figure is expected to more than triple, to $318 billion. In the electronics and electronics-related industries, the growth of outsourcing has been most dramatic; it has increased 15% to 18% in each of the past three years, and is expected to expand by 20% a year through 2001.

[78] Dheer, S., and Viard, B. (1992). EDS: Information Technology Outsourcing, Stanford University: Graduate School of Business. SM-3: 36 pgs. http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?SM3

EDS, the leader in the information technology outsourcing industry, is facing substantial technological change and increasing competition (from IBM, Andersen Consulting, and others). The issue is how EDS's strategy should respond to these changes. To provide the basis for that discussion, the case provides material for an analysis of the market for information technology outsourcing and how EDS has achieved its current position in that market. Can be used for industry and competitor analysis, strategy identification and evaluation, and strategic behavior by a market leader.

[79] Dole, R. D., and Switser, J.G. (1998). A Case-Study Guide to Business Process Outsourcing, KPMG Peat Marwich LLP, G2R, Inc.

To decide upon and implement successful business process outsourcing (BPO) solutions, end users must justify their actions through sound research and analysis. In fact, outsourcing as a strategy may not always be the best option, especially for companies whose internal issues and problems inhibit them from making sound, long-term strategic decisions (as executives who participated in this study stress, "Never outsource a problem or a process that you do not understand"). The objective of this study is to define and analyze BPO solutions and to develop a framework with which senior executives can assess outsourcing's usefulness for their companies' enterprise growth strategies, especially in companies that are reevaluating business process management or considering outsourcing. This study will steer executives through the "make vs. buy" decision for process management, which they can then apply to their own situations.

[80] Domberger, S. (1998). The Contracting Organization: A Strategic Guide to Outsourcing. New York, NY, Oxford University Press.

The book is divided into four parts. Part I begins by considering the 'make or buy' decision. This is followed by a discussion of the shifting boundaries of organizations, which revisits some of the critical issues underlying the theory of the firm: why do firms exist and what forces determine their boundaries. Part II examines in detail the benefits and costs of contracting. The strategic aspects of contracting, involving the implementation of actual policies, are closely examined in Part III, entitled 'contracting strategies'. Part IV looks at structural change associated with contracting, at the level of both individual sectors and the whole economy.

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[81] Domberger, S., Fernandez, P., and Fiebig, D.G. (2000). "Modeling the Price, Performance and Contract Characteristics of IT Outsourcing." *Journal of Information Technology* 15: 107-118. www.tandf.co.uk/journals

The rapidly increasing use of outsourcing for IT services, both in the public and private sectors, has attracted much interest from researchers and practitioners alike. While early studies of IT outsourcing were largely qualitative in nature, more recent studies have attempted to analyze the outcomes achieved in quantitative terms. This paper is consistent with the latter, but goes further by modeling the price, performance and contract characteristics that are relevant to IT outsourcing. A two-equation recursive regression model was used to analyze 48 contracts for IT support and maintenance. The results did not reveal any quantitatively significant price-performance trade-off, but did suggest that first-term contracts (i.e., the first ever contract awarded by a client for the provision of a particular IT service) were more expensive than repeat contracts. Although competitive tendering did not result in lower prices than directly negotiated contracts, it was associated with comparatively better performance. Well-defined expectations of an organization's IT requirements were also likely to lead to improved performance when the service was outsourced.

[82] Duncan, N. Buying Core Competencies? A Study of the Impact of Outsourcing on IT Infrastructure Flexibility.
http://hsb.baylor.edu/ramsower/acis/papers/duncan.htm

In business, information technology (IT) outsourcing is the practice of purchasing information systems equipment or services from a vendor external to the firm. In businesses where information technology is key to business processes or products, issues concerning outsourcing are quite controversial. Does outsourcing allow firms to reduce high overhead costs and thus improve overall performance? Or does purchasing information systems services from the market weaken the business's position to use the technology either to innovate strategic uses or to keep up with competitors' innovations? A great deal of print has been dedicated to this debate in practitioners' professional and trade journals (see, for example, Halper's 1993 works) as well as in high-profile case studies (Huber 1993, and Loh and Venkatraman 1992b). Yet little deliberate research has been conducted to date (a notable exception is Loh and Venkatraman, 1992a). In a 1994-95 study on IT infrastructure inflexibility in the insurance industry, data on outsourcing behavior was collected from 82 firms to determine whether it affected infrastructure flexibility. Preliminary analysis of the data has resulted in evidence that in the insurance industry, outsourcing is negatively correlated with certain characteristics of infrastructure flexibility. This paper summarizes the theoretic grounds for both attitudes about outsourcing, briefly describes the study conducted, and explains the nature of the early findings.

[83] Dyer, J. H., Cho, D.S., and Chu, W. (1998). "Strategic Supplier Segmentation: The Next "Best Practice" in Supply Chain Management." *California Management Review* (CMR) Reprint Series Vol. 40(Number 2): 22 pgs.
http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?CMR102

This study of 453 supplier-automaker relationships in the United States, Japan, and Korea examines the extent to which automakers manage their "arm's-length" and "partner" suppliers differently. The findings indicate that U.S. automakers have historically managed the majority of

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their suppliers using an arm's-length model, Korean automakers have managed suppliers primarily as partners, and Japanese automakers have somewhat different relationships with suppliers depending on the nature (i.e., degree of asset specificity and value) of the component. Only Japanese automakers have strategically segmented suppliers in such a way as to realize many of the benefits of both the arm's-length as well as the partner models. Firms should think strategically about supplier management and should not have a "one-size fits-all" strategy for supplier management.

[84] Eastman Kodak Company (1992). Perspectives on Outsourcing. *Harvard Business Publishing Corporation*. Boston, MA, Harvard Business Publishing Corporation.

Katherine Hudson, vice president of IS, gives her views on outsourcing and IS partnership and why Kodak made their decision. Mike Zucchini of Fleet/Norstar proposes an alternative framework and challenges her view. Designed for use with: Eastman Kodak Company: Managing information systems through strategic alliances.

[85] Elmuti, D., and Kathawala, Y. (2000). The Effects of Global Outsourcing Strategies on Participants' Attitudes and Organizational Effectiveness. *International Journal of Manpower 21*(2), pgs. 112-128.

Global outsourcing is a management strategy by which an organization delegates major, non-core functions to specialized and efficient service providers. Global outsourcing represents a significant shift in the way organizations manage and staff their business support activities. While global outsourcing has received considerable attention from practitioners and consultants, there has been little empirical research published on global outsourcing. This study explores why and how organizations are using global outsourcing and identifies problems that effect global outsourcing success. The results showed that organizations generally considered themselves successful at global outsourcing. However, while they achieved significant improvement in organizational effectiveness, they were not achieving the order of magnitude improvements ascribed to global outsourcing.

[86] Ertel, D. (November 15, 2000). Turning Negotiation into a Corporate Capability (HBR OnPoint Enhanced Edition. *Harvard Business Review OnPoint Article #5394*, 12 pgs. http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?5394

Every company today exists in a complex web of relationships formed, one at a time, through negotiation. Purchasing and outsourcing contracts are negotiated with vendors. Marketing arrangements are negotiated with distributors. Product development agreements are negotiated with joint-venture partners. Taken together, the thousands of negotiations a typical company engages in have an enormous effect on both its strategy and its bottom line. But few companies think systematically about their negotiating activities as a whole. Instead they take a situational view, perceiving each negotiation to be a separate event with its own goals, tactics, and measures of success. Coordinating them all seems an overwhelming and impracticable job. In reality, the author argues, it is neither. A number of companies are successfully building coordinated negotiation capability by applying four broad changes in practice and perspective. First, they've established a companywide negotiation infrastructure to apply the knowledge gained from forging past agreements to improve future ones. Second, they've broadened the measures they use to evaluate negotiators' performance beyond matters of cost and price. Third,

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they draw a clear distinction between the elements of an individual deal and the nature of the ongoing relationship between the parties. Fourth, they make their negotiators feel comfortable walking away from a deal when it's not in the company's best interests. These changes aren't radical steps. But taken together, they will let companies establish closer, more creative relationships with suppliers, customers, and other partners.

[87] Feenstra, R. C., and Hanson, G.H. (1995). Foreign Investment, Outsourcing and Relative Wages. Cambridge, MA, National Bureau of Economic Research.

In this paper the author's examine the reduction in the relative employment and wages of unskilled workers in the U.S. during the 1980s. They argue that a contributing factor to this decline was rising imports reflecting the outsourcing of production activities. In a theoretical model, they show that any increase in the Southern capital stock relative to that of the North, or neutral technological progress in the South, will increase the relative wage of skilled workers in both countries due to a shift in production activities of the South. Corresponding to this change in the relative wage is an increase in the price index of Northern activities within each industry, relative to that of the South. The author's confirm that this change in relative prices occurred for the U.S. and other industrialized countries relative to their trading partners. They also estimate that 15-33% of the increase in the relative wage of nonproduction (or skilled) workers in the U.S. during the 1980's is explained by rising imports.

[88] Fleisch, E., and Osterle, H. (2000). A Process-oriented Approach to Business Networking. *Electronic Journal of Organizational Virtualness*, Virtual Organization Net eJOV. 2000. http://www.virtual-organization.net/files/articles/fleisch-oesterle-00.pdf

The goal of this paper is to develop a model which helps companies in the "networked economy" to design and manage its cross-company business processes (Business Networking). Based on some case examples we recognize the importance of the process view when it comes to design business networks for implementation. The authors elaborate an approach which combines findings of network theory and business process re-engineering using results of coordination theory. To reduce complexity, we split the networking problem into five coordination areas. The authors find that describing business networks with the aid of coordination areas allows a networked enterprise to consistently orient itself towards the processes of its partners, in particular those of its customers and suppliers.

[89] Gartner Group. (September 22, 1997). Outsourcing to the Rescue. *Future*.

Projections show that by 2000, 75% of businesses will employ IT outsourcing to increase competitiveness or gain new resources and skills. That is, businesses will turn non-core competencies over to skilled vendors, and stay competitive utilizing vendors with leading edge technology. J. P. Morgan and DuPont are two examples of the trend toward $1 billion mega-deals.

[90] Gerber, S. (March 15, 1995). Demand More From Your Outsourcer. *Datamation.*

Today, most IS managers expect more than just lower IT costs from outsourcing vendors; they expect outsourcing vendors to help bring about business improvements through the rapid application of IT. In addition, many IS managers are using groups of selective-outsourcing vendors rather than a single outsourcer. As outsourcing changes, so do the methods IS managers

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use to evaluate the performance and effectiveness of their outsourcing vendors. For example, Wisconsin Electric Power, between January and June 1994, considered outsourcing 15 different IT and non-IT functions. The company decided to outsource 7 functions and defined minimum service levels - many defined in terms of business results - for each function. KPMG Peat Marwick has developed a formal methodology for evaluating outsourcers in a business-benefits context.

[91] Gerwig, K. (1999). "Business: the 8th Layer: Apps on Tap: Outsourcing Hits the Web." *netWorker: The Craft of Network Computing* Vol. 3(Issue 3): pg 13. http://www.acm.org/pubs/citations/journals/networker/1999-3-3/p13-gerwig/

This year in networking, the talk is all about applications outsourcing. Not just network-based communications services like messaging and video-conferencing, but complex, costly enterprise resource planning (ERP) programs designed for Fortune 1000 companies. Applications outsourcing is another iteration of convergence, and yet another example of the emergence of Web-enabled business.

[92] Gerwig, K. (1999). "Business: the 8th layer: E-mail Outsourcing Sends a Message." *netWorker: The Craft of Network Computing* Vol. 3(Issue 2): 13-16. http://www.acm.org/pubs/citations/journals/networker/1999-3-2/p13-gerwig/

In a few short years, e-mail has become a critical business application. E-mail has gotten so big, in fact, that it has spawned a new set of service providers dedicated to outsourcing e-mail services to businesses that find round-the-clock support too daunting - and expensive - a task.

[93] Gerwig, K. (1998). "Business: the 8th Layer: Web Site Outsourcing: Go With the Pros." *netWorker: The Craft of Network Computing* Vol. 2(Issue 3): 19-23. http://www.acm.org/pubs/citations/journals/networker/1998-2-3/p19-gerwig/

When the corporate Web site was merely a place for static "brochureware," it was easy to keep the servers in-house and use IT staff to keep them running. But with the rise of multiple servers for individual applications and the need to connect them all to corporate databases while maintaining tight security, "outsourcing" Web site management with a hosting or collocation provider is an increasingly cost-effective option.

[94] Goo, J., Kishore, R., and Rao, H. R. (December, 2000). A Content-Analytic Longitudinal Study of the Drivers for Information Technology and Systems Outsourcing. *Proceedings of the Twenty First International Conference on Information Systems, ACM Digital Library*, Brisbane Australia, pgs. 601-611. http://www.acm.org/pubs/citations/proceedings/misc/359640/p601-goo/

This research addresses the question, what are the key drivers for information technology and systems (ITS) outsourcing? ITS outsourcing drivers are examined in this research in light of several underlying organizational and economic theories in order to generate a comprehensive and enduring ITS outsourcing drivers taxonomy. A preliminary taxonomy has been developed using qualitative content analysis of 49 articles, which has been triangulated using an internal/external driver's model developed from systems-theoretic notions. Quantitative content analysis technique is being used to analyze outsourcing reports publicly available in the *PR*

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Newswire database published over the last 11 years to further develop the ITS outsourcing drivers taxonomy.

[95] Greaver, I., M.F. (1999). Strategic Outsourcing: A Structured Approach to Outsourcing Decisions and Initiatives. New York, NY, American Management Association.

This book is directed at the readers who work for organizations that may need outsourcing services, as opposed to firms that provide them. This book is intended to serve as a guide for organization executives, managers, and outsourcing team members who are exploring outsourcing. It is a how-to manual, setting forth the various issues to be addressed in an outsourcing initiative, and suggests a method for addressing them.

[96] Green, K. (February 2001). Are You Considering Outsourcing for the Wrong Reasons? *Business Credit 103*, pg. 17.

Executives in credit and customer financial services constantly face challenges to improve productivity, to drive down account receivable balances and to increase their companies' bottom lines. Technology has been key to successes in these areas, ingenuity has always been a necessity, and outsourcing continues to be a valuable tool in achieving these noble goals. The values of technology and insightful ingenuity are unquestioned, and outsourcing is often under review, both in terms of its dollar contribution to a company's success, and as a staffing alternative. The authors experience in dealing with a wide range of companies and different corporate cultures suggests that the way one views outsourcing can determine whether it is an acceptable alternative, or if it is rejected as inappropriate. The authors thesis is, outsource for the wrong reasons and you will have no impact or a negative impact on your challenges and goals. Outsource for the right reasons, and you will reap significant benefits. The author enlists a few "wrong reasons for outsourcing" and their ill effects. The article also presents a few "right reasons for outsourcing" to reap maximum benefits out of an outsourcing engagement.

[97] Greenemeier, L., and Maselli, J. (February 2001). The Service Provider Shuffle. *InformationWeek 823*, pg. 42.

As specialized service providers proliferate, companies must learn to manage and exploit multiple outsourcing relationships. Time was that the question of whether to outsource IT operations was almost a yes-or-no decision. You either turned them over to a third-party service provider or you did it all yourself. Now, thanks largely to the Internet and the growth of Web-based systems, companies can hire specialized service providers to handle specific aspects of IT: application development, data storage, security, and Web-site performance, as well as employee benefits or customer data management. Businesses can even hire service providers to monitor and manage other service providers.

[98] Gurbaxani, V. (1996). "The New World of Information Technology Outsourcing." *Communications of the ACM* 39(No.7): 45-46. http://www.acm.org/pubs/citations/journals/cacm/1996-39-7/p45-gurbaxani/

Tony DiRomualdo of CSC Index and Vijay Gurbaxani examined more than 50 outsourcing deals from around the world in a study for CSC Index's Foundation research service on IS management. These deals display a stunning diversity in their objectives and in their structure, varying in scope, size, duration, and contract. While there has been a flurry of activity,

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there is a dichotomy of deals - many continue to follow the traditional model, and a few companies are blazing new trails.

[99] Halvey, J. K., and Mummery, D.R. (1996). "Can This Relationship Be Saved?" *CIO Magazine*. www.cio.com/archive/051596_relate_content.html

Whether to renegotiate or terminate that aging outsourcing contract is the question. The answer? Maybe. But either way, you'll need to plan carefully and proceed cautiously before confronting the vendor. Companies preparing to alter existing contracts should think carefully about refitting the underlying economics, technical scope and legal framework of the deal.

[100] Halvey, J. K., Murphy Melby, B. (1996). Information Technology Outsourcing Transactions: Process, Strategies, and Contracts. New York, NY, John Wiley & Sons, Inc.

This book provides detailed information and expert guidance on outsourcing IT services. Written by the team that put together some of the biggest outsourcing deals of recent years, it walks you through the entire process, from determining requirements, analyzing benefits, and setting objectives, to selecting a vendor, structuring a deal, and managing vendor relations. The authors examine all the relevant technical, financial, strategic, legal, and human resources issues and respond to critical questions with clear, practical solutions. A wealth of forms, checklists, sample documents, and other tools - on an IBM-compatible diskette - makes structuring, negotiating, and closing an outsourcing deal easier than ever.

[101] Harris, P. (October 20, 1997). How to Outsource for Competitive Advantage. *Forbes*.

The Yankee Group estimates that by the end of 1997 more than 90% of Forbes 500s companies will have outsourced significant components. To gain a competitive advantage, companies need to change to become faster and more efficient using trained experts and the latest methodologies. IT services were the most frequently outsourced, but now outsourcing has expanded to include benefits, mailroom, legal services, security, etc. Today the advantages of outsourcing are more numerous than just cost savings.

[102] Heichler, E. (April 3, 1995). Unique Contract Helps Outsourcing Process. *Computer World*.

Elf Atochem North America Inc. (Philadelphia, Pennsylvania), a chemicals manufacturer, took the unusual approach of drawing up its own contract for maintenance of its legacy applications, specifying both technical and business terms and sending it out to the vendor community as part of the request for proposals process. Outsourcing contracts are usually short, sketchy documents produced by the vendor. The way vendors responded was part of the decision process, says Claude Maraise, director of processing services and planning. The 4-year, $4.3-million application outsourcing contract calls for Keane Inc. to maintain and support Elf applications that run on a range of platforms.

[103] Hostetler, M. (June 19, 1997). How to Secure the Best Outsourcing Deal. *Investors Business Daily*.

A market researcher recommends that if a piece of work is not a core-competency, then it could be outsourced. However, outsourcing may not necessarily save money and it may not necessarily guarantee using the latest technologies, but it can improve efficiency and ease the strain of managing technology.

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[104] Huber, R. L. (1992). “How Continental Bank Outsourced Its "Crown Jewels" *Harvard Business Review*: 121-129.
http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?93102

No industry relies more on information than banking does, yet Continental, one of America's largest banks, outsources its information technology (IT). Continental executives, eager to focus on the bank's core mission of serving business customers, decided to outsource one after another in-house service--from cafeteria services to information technology. While conventional wisdom holds that banks must retain complete internal control of IT, Continental bucked this argument when it entered into a ten-year, multimillion-dollar contract with Integrated Systems Solutions Corp. Continental is already reaping benefits from outsourcing IT. Most important, Continental staffers today focus on their true core competencies: intimate knowledge of customers' needs, and relationships with customers.

[105] Jacobides, M. G. (1997). Rethinking the Impact of Information Technology on Transaction Costs and Outsourcing Practices. Eastern Academy of Management Virtual Proceedings, New Brunswick, NJ.
http://blue.temple.edu/~eastern/jacobide.html

This paper examines the impact of Information Technology (IT) on Transactions Costs and on the structure of outsourcing relations. Examining the major arguments made in the IT literature reveals non-trivial differences between the analyses in economics / management and the respective analyses in the field of IT. By integrating the new insights from the IT literature and the management / economics analytical apparatus, a new perspective on how IT affects transactions arises. Finally, a preliminary integrative conceptual framework for understanding the impact of environmental change (and specially evolutions in IT) on transactual patterns and outsourcing strategies is proposed.

[106] Johnson, M. (1997). Outsourcing ... in brief. Butterworth Heinemann.

Why outsource? Who does it? What are the benefits? As more and more companies seek to streamline their operation and concentrate on their core business, sourcing work from outside the company has become an increasing necessity. Johnson looks at successful outsourcing organizations and how this method or productivity has improved business. Areas include: balanced view of the pros and cons of outsourcing and how to do it; highly practical, down-to-earth presentation of Outsourcing; accessible with many international examples; contains checklists and box-story items to highlight specific issues and options; includes 'How to Outsource' guide.

[107] Johnson, J. L., and Ponthieu, L.D. (1999). The Long-Term Impact and Cost-Effectiveness of Outsourcing. Austin, Texas, Texas Department of Transportation, Transportation Research Center, University of North Texas: 26 pgs.

This study was concerned with determining and evaluating the long-term impact and cost-effectiveness of outsourcing certain TxDOT functions. A 30-item Functional Outsourcing Assessment Instrument incorporating the evaluation factors was developed and utilized in this research. Nine surveys (1 for each of the nine functions under study) were sent to each of the 25 district offices of TxDOT. In addition, one survey for each function was sent to the appropriate

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central office for completion. An economic and vendor analysis was also completed for each district and for the state as a whole, and a nine-state survey was completed to benchmark practices by other states relative to the functions selected for study. Completed surveys on each of the nine functions were received from all 25 districts and one completed survey for each appropriate survey from the applicable central office of TxDOT. The findings of the study suggest that TxDOT should: (1) increase outsourcing of the Base-in-Place Repair and Paint-and-Bead Striping functions, (2) selectively outsource certain subfunctions of the Information Systems/Resources; Facilities Management and Maintenance; and Training, Quality and Development functions, (3) increase outsourcing, under effective contract management procedures, of the Right-of-Way Acquisition, Recruiting, and Partnering/Quality Facilitation functions, and (4) continue to insource the Benefits Processing function.

[108] Ketler, K., and Willems, J.R. (1999). A Study of the Outsourcing Decision: Preliminary Results. Proceedings of the 1999 ACM SIGCPR Conference on Computer Personnel Research, New Orleans, LA.
http://www.acm.org/pubs/citations/proceedings/cpr/299513/p182-ketler/

[109] Kirk, C. (January 2001). Should You Outsource Your Business Processes? *Strategic Finance Magazine 82*, 7, pgs. 26-31.

This article reports preliminary results from a survey of more than 900 firms. Information was sought from corporate and IS management about the firm's outsourcing practices and the factors affecting their outsourcing decision. Perhaps, the most surprising result of the study was the high level of consensus between the viewpoints of the two management groups. Differences were noted between the respondents who rejected outsourcing, those who outsource on a temporary basis and those who outsource on a permanent basis. The economic variables were very important to those who outsource on a permanent basis and those who rejected outsourcing. This supports the controversy surrounding the source of the savings associated with outsourcing. The negative aspects of outsourcing, such as loss of control, data security and loss of in-house expertise were rated more important by the firms, which rejected outsourcing than the firms which outsourced. The article throws light on different facets of a Business Process Outsourcing relationship. Business process outsourcing emerged in the mid 1990s but it erupted in the last year or two with the growth of the Internet and the recognition that non-core yet critical processes can, and often should, be handled offsite by contractors. Companies, preferably with sales of $250 million and more, can hand off responsibility for services like accounting to a single service provider who also services other companies and thereby garner the advantages of economies of scale.

As a result, executives in client's organization gain the freedom and flexibility to concentrate on what they do best. Unless an executive's time–spent on solving finance department personnel issues or attending myriad meetings regarding his/her department's process improvement goals–is actually increasing shareholder value, it isn't time spent, the author argues. The article presents three different critical issues, which an organization must address when outsourcing its business processes: (a) Contract with a service provider at which BPO is a strategic part of the business. (b) View your relationship with the BPO as a true partnership in which they are advising you. (c) Pay special attention to the human dimension in moving to an outside provider. The article concludes with suggestions to consider in choosing a BPO provider. (1) Select a provider with knowledge of more than a single enterprise resource

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planning system. (2) Can your provider support your growth and deliver acquisition support? (3) Establish key performance indicators. (4) Select a company sponsor to serve as a liaison to your BPO provider. (5) Establish reasonable expectations from BPO providers. (6) Maintain a focused vision of your project's purpose and avoid scope creep. (7) Allow your BPO provider to determine what processes to use to deliver the identified outcomes. (8) Evaluate the BPO provider's corporate culture against your own. (9) Look for BPO provider who maximizes teams in their company's organization structure. (10) Keep your people informed through each phase of the transition, and encourage two-way communication.

[110] Khosrowpour, M. (1995). Managing Information Technology Investments With Outsourcing. Harrisburg, PA, IDEA Group Publishing.

Technological advances of the past several decades combined with new global economic forces have created an environment where organizations are assessing new options to trim organizational costs, and at the same time become more effective in the modern competitive world markets. But all these technological advances have not been inexpensive. As a result, many firms are looking into a new option known today as outsourcing. This books deals with the problems, benefits, and potential of outsourcing in organizations. And rather than just provide coverage of outsourcing issues, it takes a broader approach to the overall concept of information technology management and investments, and the availability of outsourcing alternatives. This book is designed to help managers understand: economic benefits of outsourcing, direct and indirect costs of outsourcing, dimensions of outsourcing, strategic value of outsourcing, human aspects of outsourcing, and many other aspects.

[111] Kolbasuk McGee, M. (1997). Piece Meal Ticket -- Robinson says thee New Jersey Sports and Exposition Authority gets the one-stop shopping service, *Information Week*, CMP Media, Inc. 1997.
http://www.techweb.com/se/directlink.cgi?IWK19970714S0040

Mega-outsourcing deals have grabbed the headlines over the last year, but the smart money is betting on piecemeal deals. To be sure, it's hard to ignore big outsourcing deals such as DuPont's recent $4 billion contract with Andersen Consulting and Computer Sciences, or Ryder System's $1.4 billion contract with Andersen and IBM. That's big money by anyone's measure. But a quiet countermovement is under way. Rather than sign over the entire IT operation, crate and barrel, IT managers at DirecTV, Elf Atochem, SmithKline Beecham, and others are signing smaller outsourcing arrangements that reflect subtle, evolving trends in the marketplace. These CIOs are handing over bits and pieces of their operations that include desktop management, network management, asset management, applications maintenance, and the help desk. "Piecemeal outsourcing is a trend that's been evolving over the last couple of years," says Chuck Jarrow, director of marketing at Computer Sciences Corp., which has signed contracts to provide both large and small outsourcing arrangements. "Now, it's the majority of the outsourcing deals you see."

[112] Lacity, M., and Hirschheim, R. (1993). Information Systems Outsourcing: Myths, Metaphors, and Realities. Chichester, John Wiley & Sons.
http://www.cba.uh.edu/~rudy/out-book.htm

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Ever since Eastman Kodak announced their outsourcing contracts with IBM, Businessland and DEC, large companies have found it acceptable (some might go so far as to say "fashionable") to transfer their information systems (IS) assets, leases and staff to third party vendors. Companies that have followed Eastman Kodak's example include Continental, Enron, First City, Freeport McMoRan, Hibernia, American Standard, National Car Rental, First Fidelity, American Bankshares, Farm Credit Bank, Copperweld, and Cypress Minerals to name a few. Many more companies are likely to follow suit as is evidenced by a recent Yankee Group report which estimates that every Fortune 500 Company will evaluate IS outsourcing and 20% will sign outsourcing deals. In this book, the authors describe in some detail how these four conclusions have been reached, as well as other lessons and recommendations which emerge from our analysis of the thirteen case studies. The authors note that under specific circumstances, such as when companies cannot control IS costs on their own or need to sell IS assets to generate cash, it may well be appropriate for companies to outsource. If so, to ensure that outsourcing expectations are realized it is prudent that organizations follow the stringent contract negotiation strategies presented in this book.

[113] Lacity, M., and Hirschheim, R. (1995). Beyond the Information Systems Outsourcing Bandwagon: The Insourcing Response. Chichester, Wiley.
http://www.cba.uh.edu/~rudy/in-book.htm

Ever since Eastman Kodak announced that it was outsourcing its information systems (IS) function in 1988 to IBM, DEC and Businessland, large companies have found it acceptable (some might say fashionable) to transfer their IS assets, leases and staff to third party vendors. Senior executives of Fortune 500 companies such as Continental Bank, Enron, Freeport-McMoRan, National Car Rental, and Continental Airlines, have followed Kodak's example and signed long term contracts worth hundreds of millions of dollars with outsourcing "partners". Recently, a number of high-profile multi-billion dollar "mega-deals" have been signed by Xerox, General Dynamics, and McDonnell Douglas. Nor is this trend only fashionable in the United States. Lufthansa in Germany, KF Group in Sweden, Inland Revenue and British Aerospace in the U.K., and Canada Post in Canada have all signed significant contracts with outsourcing vendors such as IBM, EDS, CSC, and SHL Systemhouse. Such deals signal an important change is taking place in the sourcing of IS activity. CIOs and other prominent members of the IS community have responded with warnings of the dangers of surrendering management control of a "strategic asset". In many cases, these predictions have proved valid, with "partnerships" experiencing severe problems. Some companies have paid out significant sums of money to extricate themselves from outsourcing contracts and rebuilt their in-house IS capability. On the other hand, CIOs who have adamantly refused to deal with outsourcing vendors have met personal misfortune when their own organizations have failed to demonstrate value for money. These high profile events have tended to obscure the real phenomenon, a significant and irreversible move to what we call the selective sourcing of IS activity. They key question is not "should we outsource IS?", but rather "where and how can we take advantage of the rapidly developing market of IS services providers?" This book seeks to provide answers to this question.

[114] Lacity, M. C., and Willcocks, L. (2001). Global Information Technology Outsourcing: In Search of Business Advantage. Chichester, Wiley Press.

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Many Fortune 500 companies have taken to outsourcing their information technology expecting to save money while maintaining the strategic advantage enjoyed by firms that keep their IT inhouse. Most of these companies are still seeking the elusive "added value" they anticipated. Yet some companies are gaining significant competitive advantage through IT outsourcing.

[115] Lacity, M. C., and L.P. Willcocks. (Spring 1996). The Value of Selective IT Sourcing. *Sloan Management Review 37*(3). 13 pgs.

Through interviews with senior business executives, CIOs, consultants, and vendor account managers, 62 sourcing decisions at 40 organizations are analyzed. From that data, a set of frameworks to clarify sourcing options and aid managers in deciding which IT functions to contract out and which to retain in-house are developed. The frameworks are empirically derived, focus attention on the critical factors, and provide useful tools for various decision-making processes. Once dominated by a few big players - EDS, Andersen, CSC, and IBM - the IT outsourcing market increases, companies have more power to bargain for shorter contracts, more select services, and better financial packages. Also in the customer's favor is a growing experience with IT outsourcing, which allows it to intelligently evaluate and negotiate outsourcing deals.

[116] Lacity, M. C., and L.P. Willcocks. Best Practices in Information Technology Sourcing. *The Oxford Executive Research Briefings.*

When Eastman Kodak turned over the bulk of its information technology operations to three outsourcing partners in 1989, it triggered an important change in the way IT operations were carried out. Senior executives of other Fortune 500 companies followed suit and signed long-term contracts worth hundreds of millions of dollars with IT outsourcing partners, including Continental Airlines, Continental Bank, Enron, First City, General Dynamics, McDonnell Douglas, and Xerox. In the United Kingdom the authors have seen similar outsourcing deals in companies like BP Exploration, British Aerospace and British Home Stores, and central government departments like the Inland Revenue and the Department of Social Security. By 1994 some 51% of UK organizations were outsourcing some aspect of their information technology needs. In the public sector this trend was encouraged by the government's compulsory competitive tendering initiatives and privatization policies. In the seven years since the surge of outsourcing interest prompted by Kodak, organizations have had ample time to evaluate whether their sourcing ambitions have been realized, and whether outsourcing helps to deliver on the power of IT that increasingly derives from its integration with business operations. During this three-year research program, the authors conducted in-depth case studies of 61 IT sourcing decisions in 40 U.S. and U.K. companies. The authors interviewed 145 business executives, chief information officers, outsourcing consultants, and vendor account managers. This rich research base - which includes both successes and failures - enables a range of principles concerning success in sourcing IT activities to be established. Certain of these, mainly relating to timing and perception and to scale of operations, are matters over which organizations have little control. Others, however, offer key lessons for success in creating and managing sourcing. These are: (1) Right sourcing is selective sourcing; (2) Tailored contracts are better than "strategic partnerships"; (3) Short-term contracts are better than long-term contracts; (4) Outsourcing often involves substantial hidden costs which need to be carefully ascertained and

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avoided; (5) Internal IT departments should be encouraged to bid against external suppliers; (6) Sourcing should be decided jointly by senior executives and IT managers.

[117] Levy, D. (1996). User Needs Assessment and Evaluation: Interaction between Design and Assessment/Evaluation. Proceedings of the 1st ACM International Conference on Digital Libraries, Bethesda, Maryland.
http://www.dlib.org/user-needs.html

A critical issue in digital library (DL) design is incorporating user needs early in the design process and continuing throughout. The user needs and assessment groups of the DLI projects are working to improve DL design by incorporating user needs and preferences. They are working to develop data collection and analysis methods for DLs, understand DL user behavior, assess user needs, evaluate the emerging DLs against user needs, compare findings across projects, understand how this information can be efficiently and effectively incorporated in design, and build a research agenda. This working session will consist of a panel representing both the user needs assessment and evaluation group and designers from several of the DLI projects. The emphasis will be on the interaction between the design process and the needs assessment and evaluation effort. It will address such issues as the interconnected and sometimes-conflicting needs of designers, evaluators, and users; coordinating evaluation and design approaches; and impediments to and supports for this interaction.

[118] Loh, L., and Venkatraman, N. (1991). 'Outsourcing' as a Mechanism of Information Technology Governance: A Cross-Sectional Analysis of Its Determinants. Cambridge, MA, MIT and National University of Singapore.

While 'outsourcing' as a mechanism of IT governance has become very popular among the practitioners, it has received scant attention from the research community. This paper attempts to develop and test a set of determinants of the degree of IT outsourcing from the perspective of production / coordination costs. Based on an initial analytical treatment of the IT outsourcing problem, we build a research framework for the firm's decision to outsource its IT infrastructure using three explanatory constructs -- product cost structure, financing cost structure, and business performance -- with firm size and industry serving as control variables. Empirical tests using factor analysis and multiple regression on a sample of 57 major U.S. corporations established that business performance and financing cost structure are significant determinants of the degree of IT outsourcing. Subsequently, we develop directions for future inquiry.

[119] Lonsdale, C., and Cox, A. (1999). Outsourcing: A Business Guide to Risk Management Tools and Techniques, Earlsgate Press.

This volume provides a critical analysis of the strategic and operational tools and techniques developed by academies and practitioners to assist in the management of outsourcing risks. Divided into five parts, part one looks at the varied motives that have driven firms' outsourcing strategies. Part two looks at the risks associated with these strategies, particularly the problems which can arise even when the firm is outsourcing away from its 'core'. In parts three and four, the guide proceeds to discuss the tools and techniques that can be used to manage these risks effectively. Part three deals with the boundary of the firm decision itself, i.e. what should and should not be outsourced, whilst part four looks at the management of the firm's supply base

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once the outsourcing decision has been taken. The analysis concludes in part five by drawing some lessons from the preceding discussion and by suggesting new directions for research that might serve as the basis for the development of a best practice model in the future. Also continued in the volume are extensive abstract and bibliographical sections.

[120] McFarlan, F.W., and Nolan, R.L. (Winter 1995). How to Manage an Outsourcing Alliance. *Sloan Management Review*.

Companies are increasingly outsourcing information technology (IT) for a variety of reasons, such as concern for cost and quality, lagging IT performance, supplier pressure, and other financial factors. The outsourcing solution is acceptable to large and small firms alike because strategic alliances are now more common and the IT environment is changing rapidly. Suggestions for determining when to outsource and how to structure and manage the resulting alliance are provided. While outsourcing is not for everyone, some very large and sophisticated organizations have successfully made the transition. What determines success or failure is managing the relationship less as a contract and more as a strategic alliance.

[121] McFarlan, F. W., and Seger, K.N. (1993). "General Dynamics and Computer Sciences Corporation: Outsourcing the IS Functions (A)." *Harvard Business Review* 9-193-144: 22 pgs. http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?193144

It was June 1991, just over a year since Computer Sciences Corporation (CSC) and General Dynamics had first come into contact at a conference on information systems outsourcing. Now, the two companies were attempting to negotiate what could be the largest information systems outsourcing deal in history, dwarfing the 1989 Kodak outsourcing mega-contract both in size and complexity. In the proposed arrangement, General Dynamics would sell its information systems organization, the Data Systems Division (DSD), to Computer Sciences Corporation; in addition, the staff of DSD would be transferred to CSC to continue operating the data center assets. CSC would then use this capacity to provide information services to General Dynamics, as well as to other clients. It was an excellent opportunity for General Dynamics to continue to get superior information services at even lower cost while monetizing fixed assets and providing more flexibility for the future. In addition, General Dynamics considered the arrangement to be a valuable career opportunity for the employees of DSD to enter a growth business in information services by joining CSC. Ace Hall, corporate vide president, information systems and administrative services, and Larry Feuerstein, vice president, planning and quality assurance, were the managers of the General Dynamics Data Systems Division who had been involved in developing the deal. Over 15 long months, they had learned about outsourcing and worked with CSC to develop a plan that could benefit both companies. Now, they were entering more serious negotiations with CSC, and they focused on defining a plan for outsourcing DSD that they could present at the next General Dynamics Board of Directors meeting.

[122] McFarlan, F. W., and Seger, K.N. (1993). "General Dynamics and Computer Sciences Corporation: Outsourcing the IS Function (B)." *Harvard Business Review* 9-193-145: 20 pgs. http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?193145

It was June 1991, just over a year since Computer Sciences Corporation (CSC) and General Dynamics (GD) had first come into contact at a conference on information systems outsourcing. Now, the two companies were attempting to negotiate what could be the largest

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information systems outsourcing deal in history, dwarfing the 1989 Kodak outsourcing mega-contract both in size and complexity. In the outsourcing arrangement, CSC would acquire General Dynamic's entire information systems organization (the Data Systems Division) and the majority of its personnel. CSC would then use this capacity to provide information services to General Dynamics, as well as to other commercial clients. It was a brilliant opportunity for CSC to significantly enter the commercial information systems outsourcing market and achieve its corporate goal of gaining more commercial clients. Over the past 15 months, Van Honeycutt, president of CSC's Industry Services Group, had worked with senior executives at General Dynamics developing an information systems outsourcing plan. After months of discussion, the two companies were entering more serious negotiations.

[123] McFarlan, F. W., and Seger, K.N. (1993). "General Dynamics and Computer Sciences Corporation: Outsourcing the IS Function (A+B, Abridged)." *Harvard Business Review* 9-193-178: 26 pgs.
http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?193178

It was June 1991, just over a year since Computer Sciences Corporation (CSC) and General Dynamics had first come into contact at a conference on information systems outsourcing. Now, the two companies were attempting to negotiate what could be the largest information systems outsourcing deal in history, dwarfing the 1989 Kodak outsourcing mega-contract both in size and complexity. In the proposed arrangement, General Dynamics would sell its information systems organization, the Data Systems Division (DSD), to Computer Sciences Corporation; in addition, the staff of DSD would be transferred to CSC to continue operating the data center assets. CSC would then use this capacity to provide information services to General Dynamics, as well as to other clients. It was an excellent opportunity for General Dynamics to continue to get superior information services at even lower cost while monetizing fixed assets and providing more flexibility for the future. In addition, General Dynamics considered the arrangement to be a valuable career opportunity for the employees of the Data Systems Division to enter a growth business in information services by joining CSC. The deal provided a brilliant opportunity for CSC to significantly enter the commercial information systems outsourcing market and achieve its corporate goal of gaining more commercial clients. Ace Hall, corporate vide president, information systems and administrative services, and Larry Feuerstein, vice president, planning and quality assurance, were the managers of the General Dynamics Data Systems Division who had been involved in developing the deal with Van Honeycutt, president of CSC's Industry Services Group. Over 15 long months, these executives and their staffs had worked together to develop a plan that could benefit both companies.

[124] McFarlan, F. W., and Seger, K.N. (1993). "General Dynamics and Computer Sciences Corporation: Outsourcing the IS Function (C)." *Harvard Business Review* 9-193-146: 25 pgs.
http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?193146

From March of 1990 through June of 1991, General Dynamics and Computer Sciences Corporation had been discussing a possible information systems outsourcing agreement. Over 15 months, the idea had grown from a join venture IS business between two companies to a full outsourcing arrangement. Both companies saw the outsourcing partnership as an excellent opportunity, but in the summer of 1991, negotiations were stalled over the issue of the purchase price that CSC would pay for the General Dynamics IS business, the Data Systems Division. At the initial meeting in June to discuss the purchase price, Van Honeycutt, president of CSC's

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Industry Services Group, had offered $100 million for the DSD business and a 10-year information services contract that offered a slight savings over General Dynamic's current annual expenditures in the Data Systems Division. Harvey Kapnick, General Dynamics vice chairman, however, had wanted at least $200 million for the DSD assets. Both sides left this meeting with the issue unresolved.

[125] McFarlan, F. W., and Seger, K.N. (1993). "General Dynamics and Computer Sciences Corporation: Outsourcing the IS Function (D)." *Harvard Business Review* 9-193-147: 8 pgs. http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?193147

By the end of 1992, the outsourcing arrangement between CSC and General Dynamics had been operating one full year. Overall, both companies were pleased with the results and confident in the future of the contract.

[126] McKinsey. (1999) Highlights of the NASSCOM-McKinsey Study Report 1999- Study on IT-Enabled Service Sector. Sponsored by the National Association for Software and Services Companies – India.

The National Association of Software and Services Companies (NASSCOM), India, commissioned McKinsey and Co. to carry out a study of the potential for IT-enabled services in India. The report analyzes the opportunities for India in the various IT-enabled sectors, the projected growth trends and how India compares to other countries on attributes relevant to ITES.

[127] Mehta, D. (2000). Nasscom's Handbook - IT Enabled Services, Background and Reference Resource, Third Edition, National Association of Software and Service Companies: 160 pgs. http://www.nasscom.org

This Handbook of IT Enabled Services is a background and reference resource. This has been compiled by NASSCOM and contains the information of different segments - Call Centers, Medical Transcription, Data Processing & Back Office Operations, Online Education, Data Digitization, GIS Services, and Computer-Assisted Animation. This also contains the papers presented in "The National Conference on IT Enabled Services" held on September 19-20, 2000, in Delhi, India. This handbook also contains the abstract of the "McKinsey (1999) Highlights of the NASSCOM, McKinsey Study Report on the IT Enabled Service Sector" which gives: The Indian Scenario of the IT Enabled Services, its growth and opportunities, recommendations, and suggested initiatives.

[128] Midrange Systems. (April 14, 1995). Goals are Key to Outsourcing Success.

A new study found that outsourcing efforts that fail typically are short-term projects that are heavily managed by other departments in the company. All too often, outsourcing is treated as a financial exercise rather than as a business development strategy. The cost savings from a successful outsourcing project typically are moderate - about 10% a year - with an increase in capacity and quality of 15%.

[129] Miller, J., Glass, K. K., and Michalski, L. (January 2001). Balancing the Benefits of Outsourcing / Commentary. *Biopharm 14*, pgs. 52-56.

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Balancing the benefits of outsourcing with the risk of losing critical skill sets is one of the toughest calls in the decision to outsource. In the minds of many pharmaceutical company managers, the loss of those skills outweighs the time and money advantages of outsourcing.

[130] Minoli, D. (1995). Analyzing Outsourcing: Reengineering Information and Communications Systems. New York, NY, McGraw-Hill.

The 1990s are the decade of corporate reengineering and "right-sizing." Organizations are inventorying the tasks they perform vis-à-vis their core business, and for many of these tasks, they are asking whether the task really needs to be done, or whether it can be eliminated or outsourced to an agency that specializes in such activities. Doing a job internally affords detailed control; however, this approach carries the responsibility of planning, designing, implementing, staffing, training, managing, monitoring, tracking technological development, and eventually making the transition away from the infrastructure required to support the job.

[131] Mullin, R. (July/August 1996). Managing the Outsourced Enterprise. *Journal of Business Strategy*.

According to the Gartner Group, 25% of current contracts will be renegotiated or canceled in the next three years. This is due, in part, to the customer's transferring the management of the relationship to the suppliers.

[132] Nam, K., Rajagopalan, S., Rao, H.R., and Chaudhury, A. (1996). "A Two-Level Investigation of Information Systems Outsourcing." *Communications of the ACM* 39(No. 7): 36-44. http://www.acm.org/pubs/citations/journals/cacm/1996-39-7/p36-nam/

Outsourcing relationships between clients and vendors are diverse and complex. Here, the authors explore the impact of organizational, environmental and economic factors on two dimensions of outsourcing decisions. The following three research questions are explored: What are the dimensions of outsourcing decisions? What are the determinants that affect the dimensions of outsourcing decisions at the first level? What are the determinants at the second level that affect the client firms' intention to continue the existing outsourcing relationships with the current vendors?

[133] Nam, K., Rajagopalan, S., Rao, H.R., and Chaudhury, A. "A Two Stage Investigation of the Determinants of Information Systems Outsourcing." http://hsb.baylor.edu/ramsower/acis/papers/nam.htm

Outsourcing has recently emerged as a key method of managing Information Systems especially since the report about Eastman Kodak and IBM's outsourcing partnership in 1989 (Loh and Venkatraman, 1992a, 1992b). The importance of outsourcing is partially illustrated by the fact that there are myriad conflicting arguments for and against outsourcing (Chaudhury et al, 1989, 1995; Gantz, 1990; Lacity and Hirschheim, 1993; Nam et al, 1995a, 1995b). The authors investigate the factors that determine outsourcing decisions in two stages. In the first stage, both insourcing and outsourcing firms are studied to investigate the determinants of "make-or-buy" decision. In the second stage, only outsourcing firms are considered in order to study the intention to continue with the relationship.

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[134] Nolan, R. L. (April 5, 2000). Drugstore.com. *Harvard Business Review #300036*, 23 pages.
http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?300036

On a clear day in August 1999 in the new headquarters of drugstore.com, against a backdrop of the Blue Angels flying in formation over Lake Washington practicing for their hydroplane Seafare Cup performance, Peter Neupert was pleased with his company's IPO performance. Just last month, on July 28, 1999, drugstore.com had burst to life as a public company. Shares priced at $18 had soared as high as $69 on the first day of trading, providing a total valuation for drugstore.com of more than $2.9 billion—and a record: drugstore.com was the fasted company ever to reach a valuation of $1 billion. The team had built a virtual drugstore on the Web. During the first six months of its existence more than 160,000 customers had come to shop for more than 17,000 drugstore products and prescription drugs. Customer orders were electronically sent to distribution centers run by Walsh Distribution and RxAmerica, both located in Texas. Drugstore.com had entered into outsourcing agreements/partnerships for fulfilling the orders with these two firms. For six months ending July 4, 1999, drugstore.com sold products to approximately 168,000 customers, and had net sales of $4.2 million with an operating loss of $30 million. In June of 1999, drugstore.com had 980,000 unique visits to its Web site compared to 560,000 unique visits to its competitor PlanetRx.

[135] Ozanne, M.R. (February 2000). D & B Barometer of Global Outsourcing, The Millennium Outlook. Sponsored by Dun & Bradstreet (Enhanced Benefits Associates).

On a day in mid-December of the year 2000, a company somewhere in the world will spend the year's 1,000,000,000,000th dollar on outsourcing. With that expenditure, outsourcing will become one of the few business activities to ever reach this level of annual expenditure. This is one of the findings from the Dun and Bradstreet Barometer of Global Outsourcing – 2000.

[136] Ozanne, M.R. (September 29, 1997). Managing Strategic Partnerships for Virtual Enterprises.

Twenty-three companies and their vendors describe their successful outsourcing experiences as partnerships on a global scale. These partnerships give companies access to specialized expertise in critical business functions. The partnerships are giving real meaning to an important innovation in corporate thinking: the virtual enterprise. Dun & Bradstreet's findings on companies that utilize outsourcing is that, first of all, they are financially more stable than those that do not and, secondly, 90% of companies that outsource are considered good credit risks as compared to 60% of all companies.

[137] Pastore, R., Hildebrand, C., Dahle, C., and Santosus, M. (1996). "5 Uneasy Pieces, Part 2." *CIO Magazine*.
www.cio.com/archine/060196_uneasy_2_content.html

This article covers the following topics: Outsourcing (the trendline, how it works, what outsourcing promises, and the pitfalls), Customer Satisfaction (the trendline, how it works, what customer satisfaction promises, and the pitfalls), Benchmarking (the trendline, how it works, what benchmarking promises, the pitfalls), and The Learning Organization (the trendline, how it works, what the learning organization promises, and the pitfalls).

[138] Pastore, R. (1996). "The Art of the Deal." *CIO Magazine*.
www.cio.com/archive/051596_outsourcing_content.html

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As outsourcing partnerships become more the rule than the exception, CIOs learn that the give and take continues long after the contract negotiations have ended. The article discusses the following sections: Collect fines for noncompliance, Don't be afraid to confront the vendor, Go to the top when necessary, Set up a governing board and meet regularly, Don't outsource the oversight, Maintain continuity of management, and Don't force a bad fit.

[139] Peisch, R. (1995). "When Outsourcing Goes Awry." *Harvard Business Review*: 2-10. http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?95309

Grant Newman, CEO of Regional Medical Center (RMC), expected the worst from the meeting that was scheduled to begin in less than an hour. The anesthesiologists were at the end of their rope, and the hospital's surgeons and obstetricians were pretty riled up too. Eighteen months earlier, Newman had made the decision to outsource RMC's anesthesia services, and he had signed a contract with Physicians Development Services (PDS), a contract management company. At the time, PDS seemed a good fit. It had a reputation for providing high-quality physicians both on a permanent basis and for temporary assignments. Unfortunately, however, PDS was undercapitalized and chronically mismanaged. PDS's paychecks to the anesthesiologists began arriving late and then bounced several times over a three-month period. In addition, the contract between the anesthesiologists and PDS had expired three months earlier, and the anesthesiologists were providing services without a contract. What can Newman do to resolve this conflict? Seven experts consider how the hospital's outsourcing crisis could have been avoided.

[140] Portugal, F. (1997). Exploring Outsourcing: Case Studies of Corporate Libraries, Special Libraries Association.

A pilot study was commissioned by the Special Libraries Association (SLA) to specifically examine the outsourcing of corporate libraries. Seven companies were selected for the final interviews. Two companies had completely outsourced their library operations, whereas the other five had partially outsourced them. Two were located on the East Coast, two were on the West Coast, and three were in the South. Library size ranged from one librarian without a master's degree in library science (MLS) to libraries with a total staff of 45, including many with an MLS. The companies were drawn from the communications, oil, public utility, manufacturing, computers, and services industries. The information obtained and the conclusions drawn come from interviews with librarians, senior managers, and users of library services just at these seven companies. This study finds that information delivery is frequently affected by outsourcing relationships. Outsourcing vendors are motivated to answer research queries as quickly as possible rather than as thoroughly as possible. Outsourcing appears to be a trend that the companies in this pilot study are following with little prior strategic planning.

[141] Rao, H. R., Nam, K, and Chaudhury, A. (1996). "Information Systems Outsourcing." *Communications of the ACM* 39(No. 7): 27-28. http://www.acm.org/pubs/citations/journals/cacm/1996-39-7/p27-rao/

Information systems (IS) outsourcing - the contracting of various IS functions, such as data center management, operations, telecommunications, and software maintenance by user-firms to outside vendors - has existed in one form or another for years. Recently, however, the trend towards outsourcing has become a major IS phenomenon, as evidenced by increasing press

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coverage. A number of major contracts have been reported: IBM and MCI running Merrill Lynch's network, McDonnell Douglas and Genix running American Standard's data and network operations, as well as the $3 billion partnership between Computer Sciences and General Dynamics.

[142] Ripin, K. M., and Sayles, L.R. (1999). Insider Strategies for Outsourcing Information Systems: Building Productive Partnerships, Avoiding Seductive Traps. New York, NY, Oxford University Press.

As they experience ever more intense competition, almost all companies have the same strategic priority: becoming more focused on service, quality, and operational excellence. In today's computer-based business world, accomplishment will depend, in part, on an organization's ability to become more effective in its use of information systems (IS). Paradoxically, the growing dependence on information systems is accomplished by ever-greater use of outsourcers both to design and to manage this critical resource. This seems like a profound inconsistency. Over the years, truly successful companies have been those with management able to confront and cope with anomalies and contradictions. That may, in fact, be the best test of managerial excellence. It separates those who simply "go with the flow" - usually not even recognizing the contradictions inherent in their strategies - from executives who can develop creative solutions to tough dilemmas. Executives, alert to these dilemmas, will have found ways to make outsourced information systems responsive to their rapidly changing requirements. They recognize that an essential component of an operational excellence strategy is the development of the line manager's capacity and motivation to use systems to continuously enhance performance. In less successful companies, outsourced systems have become an administrative encumbrance. Their managers increasingly ignore the need for fine-tuning and walk away from information technology issues. Their systems are the outsourcers' "business." These managerial challenges are the subject of this book.

[143] Rothery, B., and Robertson, I. (1995). The Truth About Outsourcing, Gower.

The term "outsourcing" is used to describe a phenomenon which is sweeping industry. It is possibly a part of the wider movement of society towards shaping a more productive and less wasteful world. Outsourcing presents management with sensitive human relations challenges as never before, as it can affect any employee and any manager outside the so-called 'core competencies'. As no structured approach already exists, or may not be readily available, this books provides both a description of the strategy of outsourcing and a methodology for going about it. It is therefore aimed at senior management. Part I describes the drivers behind the increasing practice of outsourcing, the kinds of work which can be outsourced, the core competencies normally retained, the pitfalls and the nature of the project involved. Part II examines specific sectors and applications, while the appendices provide useful checklists, including important legal considerations and a proposed methodology.

[144] Salenger, D. (1997). “Internet Environment and Outsourcing.” *International Journal of Network Management*, John Wiley & Sons, Ltd. Vol. 7: 300-304.
http://www.acm.org/pubs/citations/journals/ijnm/1997-7-6/p300-salenger/

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This article discusses the issue of Internet security from a business perspective. It describes strategies that relate to the needs of different types of business, and covers both outsourced and in-house systems.

[145] Saunders, C., Gebelt, M., and Hu, Q. (1997). "Achieving Success in Information Systems Outsourcing." *California Management Review* Vol. 39(Number 2): 18 pgs. http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?CMR075

The conventional wisdom is that companies should never outsource core functions. This study of 34 large companies that outsourced for at least two years demonstrates that outsourcing can be successful even when information systems are viewed as core functions. However, outsourcing negotiations must reflect the role of the company performing the outsourced functions and the nature of the outsourced work. A critical key to success in outsourcing arrangements lies in having tight contracts, even when the outsourcing vendor is viewed as a strategic partner or the IS function is considered to be core. This article offers prescriptions for writing contracts and creating balanced arrangements to enhance outsourcing success.

[146] Schroeder, D. (1994). Outsourcing the SCA, Inc.'s Corporate Office Investigating the Association Management Firm Alternative. Pittsburgh, PA, Carnegie Mellon University: 5 pgs. www.cs.cmu.edu/afs/cs/usr/mjc/www/bod/outsource

Association management firms are companies that specialize in handling the day-to-day business affairs and special activities of organizations large and small. They traditionally provide things like mailing list management, financial management (such as handling checks, disbursements, tax returns, fiscal status reports, and audits), inventory management (such as our Stock Clerk function), gathering material for Board meetings (such as our Corporate Secretary's function), and handling the duties of an Executive Director (such as obtaining insurance, coordinating legal issues, working with accountants/auditors, and advising Boards of Directors). For organizations that need such services they also handle meeting planning for annual conventions and the like, production and/or editorial services for group newsletters, public relations, preparing annual membership directories, strategic planning, and fund raising just to name a few. The key phrase for these companies is "we'll do whatever is necessary to meet the particular needs of each client."

[147] Scrupski, S. (July 28, 1997). Turning Contracts into Partnerships. *Computer World*.

The business benefit contracting, or gain-sharing, is based on the concept that the vendor's compensation is vested in delivering a successful business result. With gain-sharing these new contracts are more akin to partnerships.

[148] Scully, E. (May 1995). Resourceful Outsourcing. *Executive Excellence*.

In making the decision to outsource, companies should consider 6 factors: 1. assessment of the situation, 2. request for proposal, 3. evaluation of proposals, 4. negotiation, 5. transition planning and execution, and 6. relationship management.

[149] Seidner, A. G. (February 2001). Outsourcing Investment Management: Creating and Evaluating Requests for Proposals. *Heathcare Financial Management 55*, pgs. 80-82.

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It may be prudent to use the services of a professional investment manager. A professional investment manager is defined as a qualified investment professional who is paid on a fee-for-services basis. Selected a qualified investment manager is a serious and detailed task. Before beginning a search for an investment manager, the CFO of the health care organization should define specific objectives to include in the request for

[150] Shared Services Forum, T. (2000). Outsourcing Internal Services, The Shared Services Forum. 2000.
http://www.akris.com/Outsourc.htm

Why outsource internal services: Cost reduction; Poor performance; Capabilities not core to strategy; Better, cheaper, effective alternatives exist; Insufficient expertise not available to upgrade; Potential loss of control not an issue; Service no longer relevant; Previous experience with successful outsourcing; Too disruptive to make the changes internally.

[151] Simons, R. L. (1996). "Automatic Data Processing: The List." *Harvard Business Review* 9-197-019: 3 pgs.
http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?197019

The managing director of one of ADP's divisions must recommend whether to divest, harvest, or grow the division. Recent performance has been excellent and the near-term outlook for profitability is very positive. However, the industry is maturing and the division is not well positioned for the long term. ADP imposes a set of strategic and competitive requirements on all divisions each year to force management to address the determinants of long-term performance.

[152] Simons, R. L. (1996). "Automatic Data Processing: The EFS Decision (Abridged)." *Harvard Business Review* 9-197-018: 14 pgs.
http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?197018

The managing director of one of ADP's divisions must recommend whether to divest, harvest, or grow the division. Recent performance has been excellent and the near-term outlook for profitability is very promising. Despite some strategic concerns, the strong financial performance and near-term prospects would seem to argue for continued support of the division.

[153] Skinner-Krenik, J. (1994). "Outsourcing Data Processing: All That Glitters is Not Gold." *Western City* 70(8): [7]-8, 25.

In this era of trying to do more with less, data processing departments are finding that technological innovation may not be enough to keep pace with shrinking budgets. As a result, agencies across the country are considering a myriad of options to deal with the new reality. These include downsizing, rightsizing, or even outsourcing their data processing functions. Outsourcing is contracting with a facilities management company for data processing services and operations management.

[154] Slaughter, M. J. (1995). Multinational Corporations, Outsourcing, and American Wage Divergence. Cambridge, MA, National Bureau of Economic Research.

Many economists studying America's wage divergence in the 1980's have concluded that its primary cause was a within-industry shift in relative labor demand toward the more-skilled.

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Following the modeling framework and empirical methods developed in Slaughter (1993), in this paper I try to determine the extent to which outsourcing by multinational corporations contributed to this labor-demand shift. To do this, I use data from the Bureau of Economic Analysis (BEA) on U.S. manufacturing multinationals in the 1980's. My main finding is that the data are inconsistent with U.S. multinationals having outsourced heavily in the 1980's. First, I construct a set of stylized facts about the employment, investment, and production patterns of these firms. I find that most of these facts are inconsistent with widespread outsourcing. Second, to test more rigorously whether these firms substitute between U.S. and foreign production labor I estimate their factor-price elasticity's of demand in a translog-cost-function specification. I find that home and foreign production labor at best seem to be weak price substitutes and in fact may be price complements. Taken together, these findings indicate that multinational outsourcing contributed very little to rising wage inequality.

[155] Slaughter, S., and Ang, S. (1996). "Employment Outsourcing in Information Systems." *Communications of the ACM* Vol. 39(No. 7): 47-54.
http://www.acm.org/pubs/citations/journals/cacm/1996-39-7/p47-slaughter/

In recent years, information systems (IS) outsourcing has become so pervasive it can no longer be ignored. An important question is why firms choose to outsource IS work. This question has been considered from a number of perspectives. This study examines the reasons for IS outsourcing from the perspective of labor market economies. From this perspective, outsourcing is a result of how firms respond to the costs and benefits of employment arrangements with their IS workers.

[156] Strassman, P. A. (1995). "The Myth of Best Practices." *ComputerWorld*.
www.strassmann.com/pubs/cw/best-myth.shtml

There's no formula for the best way to spend money on information technology - save one - don't spend it on massive outsourcing contracts. Is there a best way to spend your information technology budget? The answer is no. Excellent companies can achieve superior performance without following any standard information technology spending pattern. The author bases this conclusion on his analysis of the budgets of Computerworld's Premier 100 companies over a two-year period. These are organizations whose information productivity is superior to other U.S. corporations'. The Premier 100 companies don't show any consistent IS budget patterns. Only one variable clearly stands out: They don't show any trends toward massive outsourcing.

[157] Strassman, P. A. (1995). "Outsourcing: A Game for Losers." *ComputerWorld*.
www.strassmann.com/pubs/cw/outsource-losers.shtml

Strategy isn't driving outsourcing. Statistics show the real reason companies outsource is simple: They're in financial trouble. Despite all of the reasons offered in the press, so far there is only one good explanation that fits almost every case of large-scale outsourcing. The outsourcing corporations are trying to return to profitability by cutting employment. One way of achieving this objective is by ending their commitment to keeping up a home-grown capacity to master the introduction and maintenance of information technologies.

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[158] Useem, M., and Harder, J., Lateral Leadership in Outsourcing Organizations. - Michael Useem. To be Published.

Sourcing services necessitate distinct ways of assuring delivery when you can no longer guarantee quality or timeliness, and the concept of lateral leadership of leading out instead of managing down comes as close as any to describing the capacity now required. The authors have reached this conclusion through intensive discussions with managers in 24 major companies in the U.S. and abroad. The authors have interviewed directors of strategic sourcing, managers of shared services, information directors, division managers, chief financial officers, and chief executives. What emerges is a picture of a more demanding leadership environment even as day-to-day management tasks are streamlined.

[159] Wee, D. M. (1992). Downsizing and Outsourcing Opportunities: Right-Sizing Requires Right-Sourcing. ACM SIGUCCS XX Conference Proceedings on User Services, Cleveland, Ohio. http://www.acm.org/pubs/citations/proceedings/userservices/143164/p253-wee/

Many systems in academic computing are being "right-sized," creating a diversity of platforms to support. This diversity offers differing support options for each platform, so attention must be paid to HOW decisions to insource or outsource are made. Examples of source-of-support decisions (including microcomputer repair, LAN design, and LAN training) are examined. Then the relative strengths of various support source options are reviewed.

[160] Willcocks, L., and Fitzgerald, G. PILKINGTON PLC: A Major Multinational Outsources Its Head Office Information Technology Function. http://www.wiley.com/college/turban2e/icase1.html

Pilkington PLC is a major international company supplying flat and safety glass and related products worldwide to a range of industries. In 1992 Pilkington had revenues of £2.6 billion ($US 4b. approx.) and a profit before taxation and after exceptional; l items of £77 million ($US I 10m.), This compared with a profit of œ152 ($US 228m.) on similar revenues the previous year. The Group operates globally through its regionally-based operating companies. In the face of declining profits and a nearly world-wide business slump, the Pilkington board ordered cost reductions across the Group. In this context the Group Head Office (HO), based at St. Helens in the United Kingdom (UK), was one target for large headcount reductions. This was to be done by focusing on core activities only, outsourcing as many services as possible, or devolving services into the operating companies or business divisions.

[161] Williams, O. (1998). Outsourcing: A CIO's Perspective. New York, NY. St. Lucie Press.

This book addresses the advantages and disadvantages of outsourcing. It is up to each Chief Information Officer to determine if outsourcing is a good alternative for his or her specific company. To do so, each company will have to go through the exercises as outlined in the book. This book is meant to invoke thought and provide possible strategies for the outsourcing process. It also addresses the realistic expectations and the common questions associated with outsourcing. If you are going to consider outsourcing, you need to know how to proceed through the outsourcing process. This book will guide you through the process and identify some of the hurdles typically associated with outsourcing.

[162] Worthington, T. (1997). Outsourcing and Contracting Out of IT Products and Services. Sydney.

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http://www.acs.org.au/president/1997/outsrc/paper.htm

The primary aim of this paper is to provide advice to members concerning the contracting out of IT services. This has become important particularly, but not exclusively, because of the current high level of interest in the government outsourcing of IT by federal and state government agencies in Australia. A secondary purpose is to make such a paper available as a part of a submission to the Senate Finance and Public Administration References Committee for its IT Outsourcing inquiry.

[163] Yankelovich Partners. (August 1998). Global Top Decision Makers Study on Business Process Outsourcing. Sponsored by PricewaterhouseCoopers.

Business Process Outsourcing (BPO) is becoming a widely accepted management practice throughout the world, as companies in many industries outsource more of their business processes to best-in-class service providers to increase performance, profitability and shareholder value. PricewaterhouseCoopers (PwC) recently completed a landmark study of Business Process Outsourcing practices among many of the world's leading corporations. The study results provide valuable information and insights on global trends and developments in this important field, in terms of company experience, executive attitudes, satisfactory levels, strategic benefits, and usage by country and industry.

[164] Zwanzig, C., Schulz, H.S., and Kirchhoff, U. (1999). Project No. 24176. OutSource - Software Process Improvement Experiment Concerning Effective Outsourcing Mechanisms, Version 1.0, ATB Institute for Applied Systems Technology Bremen GmbH.

The outsourcing of software development tasks can have substantial benefits but can also bear various risks. Considerable drawbacks with regard to successful outsourcing can be (1) a lack of transparency and controllability of the software development process from a management and a technical point of view, (2) a lack of communication between the customer and the software supplier and (3) the time gap between the initial analysis of user requirements and the date at which operational software is available for the first time. The most critical phases with respect to outsourcing are the requirements analysis, the system specification and the system design phases which were addressed by the ESSI Project No. 24176 OutSource. The main business goals of the OutSource project were to increase customer satisfaction, to reduce time-to-market and to reduce software development costs. The results obtained in the OutSource project have a high potential for external replication because they are beneficial not only for software suppliers but also for customers with the intention of practicing outsourcing.

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OUTSOURCING
Application Service Provider

[165] ----------. Key Drivers and Success Criteria for a Call Center Operation. http://www.callcentres.com.au/bbccall3.htm#Keydrivers

The Web site presents key drivers and success criteria behind any successful call center project. This has been presented through a case study on 'Brisbane City Council Call Center' by Niels Kjellerup. The study puts to rest the myth that only profit driven private organizations can and will let the customers be first. In fact shortsighted profit maximization often leads to deteriorating call centers failing to walk the talk of exceeding customer expectations. Some of the key drivers have been identified as: 1) The Vision formulated and propagated by the top management for 'Customers come First'. Re-instating pride in serving the customer has been a major achievement of top management and the management team. 2) Identifying and mapping out all customer contact processes. To improve and redesign processes it is imperative to know the existing processes. 3) Establishing Key Process Indicators (KPI) for every customer interaction process. Moreover KPIs need to be defined with and by the people who are involved with the delivery. 4) Integration of the call center with the rest of the organization. Many call centers are established as dead-ends and integration happens only slowly or not at all. 5) Clearly defined outcome based performance standards for the call center. The challenge is to create a Coaching Culture, which encourages reps to continually improve their own performance and thus productivity. Pride and a shared goal for improved service delivery is the key here. 6) Translating improved service delivery into cost savings, short term and long range.

[166] ACS Call Center - Online Learning Center of Vanguard Communications Corporation. http://www.call-center.net/ccstudy00-part2v1.htm

These Web sites, by way of conducting a Benchmarking study on call center operations, present a set of metrics used to monitor: (a) call center operations and management practices, (b) use of technology in the call center, and (c) customer relationship management strategies. The areas covered are: (1.) General Questions and Demographics, (2) Improvement Initiatives, (3) Performance Objectives, (4) Management Practices-Supervisors, (5) Management Practices, (6) Outsourcing, (7) Training, (8) Quality Monitoring, and (9) Organizational Trends and Future Directions. The Web site also addresses the use of technology and future technology directions. There is a special section to address the rapidly evolving tools and processes for customer relationship management, especially for call center operations.

[167] Dash, J. (March 27, 2000). Survey: Skills Shortage Spurs Outsourcing. *ComputerWorld 34*, 13, pg. 10.

According to a recent survey, companies that look to outsource may be more interested in procuring the right skills than cutting costs. Some companies find that outsourcing can help retain existing employees. Many companies select an application service provider to handle more mundane tasks so their internal information technology staff can handle more complex projects.

[168] Engel, F. (1999). The Role of Service Level Agreements in the Internet Service Provider Industry. *ACM, International Journal of Network Management 9,* pgs. 299-301. http://www.acm.org/pubs/citations/journals/ijnm/1999-9-5/p299-engel/

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Service Level Agreements (SLAs) are becoming more commonplace, but there are areas of concern. This article assesses the pros and cons of SLAs in the ISP industry.

[169] Fogarty, K. (April 3, 2000). Making the Right Bet on ASPs. *ComputerWorld 34*, 14, pg. 38.

An editorial states that while outsourcing something is crucial as an ERP system to an ASP is a bad idea, trusting e-commerce and recruiting functions to a service provider can give you a real advantage. Signing up with the right collection of ASPs can give you drop-in e-commerce capabilities at a low cost and even lower risk.

[170] Fonseca, B. (July 24, 2000). Pricing Inhibits ASP Market. *InfoWorld 22*, 30, pg 8.

Microsoft's announcement of 2 different pricing models for its Microsoft.NET strategy is adding to the confusion among potential application service provider (ASP) customers who are unsure of the most cost-effective pricing model to sign up for. ASP pricing models are based on a fixed price per user per month for back-end applications, or for transaction-based applications that have a low associated transaction cost. Complicating pricing matters further, analysts said that ASP partnerships, which are considered inevitable, could lead to skewed pricing and cost-tracking schemes as multiple vendors divide their profits.

[171] Hall, M. (June 12, 2000). The Case for ASPs. *ComputerWorld 34*, 24, 58-59.

There are many reasons to use an application service provider. Through the use of ASPs, the 1,300 employees at National Airlines get speedier access to software than they would if the company deployed licensed applications. But there are risks involved in going the ASP route. According to a recent Information Technology Association of America survey, the biggest risk the IT mangers surveyed perceived was integrating ASP software with legacy applications and data. The 2nd-biggest risk was working with fledgling ASP vendors that may not be around long. Last on the list was the fear of losing control of IT infrastructure. Last on the list was fear of losing control of IT infrastructure.

[172] Hancock, B. (1999). Application Service Provider Hosting Centers are a Security Problem. *Computers and Security 18*, 5, pg. 381-382.

Building security for hosting centers with server farms that handle applications remotely will emerge as a major topic of discussion during this Spring's ISPCon conference, said resellers and ISPs.

[173] Hanna, D. (December 1999). Poised for Strike: The ASP Phenomenon. *Chartered Accountants Journal of New Zealand 78*, 11, pgs. 62-64.

Ever evolving, growing and forever changing the rules and overcoming the limitations, the computer industry is poised ready for the next major IT revolution. The IT systems found in today's small- to medium-sized enterprises (SME) are highly complex, requiring an ever-increasing level of administration and expense. An application service provider (ASP) is an IT company that hosts and manages applications remotely for the SME. The SME accesses the host via either leased data lines, VPN or the Internet at a known cost. This brave new world of the ASP is explored in detail.

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[174] Leon, M. (July 10, 2000). The Evolution of the Hosted App. *InfoWorld 22*, 28, pgs. 28-29.

Application service providers, or ASPs, first gained traction as a way to reduce the pain and cost of ERP (enterprise resource planning) applications. Although interest in ASPs remains keen, the IT community is leery of this software delivery model. A new generation of software provider has quietly assumed the ASP mantle, indicating that a change may be on the horizon. Rather than selling a faster, better, cheaper way to do ERP, these ASPs are selling new business-to-business services - some of which were not even imagined when ASPs first sparked interest.

[175] Linthicum, D.S. (April 2000). To ASP or Not to ASP? (Industry Trend or Event). *Software Magazine*.

That is the question, as companies weigh the value of building and maintaining their own enterprise applications vs. hiring an application service provider. In the early days of computing, most mid- or small-sized companies could not afford a mainframe or minicomputer, and purchased enterprise computing power through time-share services. These services provided a dial-in connection through a dumb terminal (rememberVTl00s), allowing the subscriber to build and use enterprise applications existing hundreds, if not thousands, of miles away. The value proposition of time-share services was the simple fact that businesses with limited funds did not have to purchase, maintain, and hire a technical staff to run their enterprise-critical applications. Instead, they paid a per-use fee, allowing them to direct capital to other more profitable areas. Fast-forward a few years. As computing cost continued downward, those same organizations that once leveraged time-share computing were finally able to purchase their own enterprise systems and build and maintain their own applications. The rest is recent history. However, as the price of technical talent continues to rise sharply and Internet-delivered applications become more commonplace, companies are reevaluating the business case for developing and maintaining enterprise applications within the corporate firewalls. Enter the concept of an application service provider (ASP), an organization that delivers application services over the Web, typically at a reduced cost compared to maintaining the systems yourself.

[176] Potter, C. (May 2000). Rent-a-CAD (Industry Trend or Event). *Computer Graphics World*.

Two new vendors have joined the mechanical design automation community in recent months, Alibre Inc. and CollabWare Corp. These companies are noteworthy, not so much for the software they provide, but for the way they provide it. Both companies are application service providers (ASPs), who make engineering-related software accessible on a pay-as-you-go basis from their Web sites. They are also being joined by familiar faces in the MCAD world--MSC.Software (formerly the analysis software vendor, MacNeal Schwendler Corp.), Engineering Animation Inc. (EAI), and CoCreate--that also rent engineering application software over the Web. What are we to make of this? Is renting design automation software and accessing it remotely a good idea? That depends on whom you ask and what kind of software you're talking about. Indeed, there's no consensus about whether accessing CAD, or more specifically a solid modeler, through an ASP is a good approach. Some people say it is, others say it isn't yet but may be eventually, while still others give the idea an unqualified thumbs down. Some people in favor of having ASPs supply CAD express sentiments similar to those of Robert Kross, vice president of Autodesk's Mechanical Market Group, who says, "In general, anything that gives users more choices is probably good." To be sure, there are potential benefits to supplying CAD this way. Jim Rusk, general manager of CAD/CAM products at SDRC (Milford, OH), doesn't believe that his company's target customers--the global, Fortune 1000 companies--will want to

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get the majority of their CAD licenses through an ASP arrangement. "They want to be more in control of their destinies, so that nothing outside their domain will impact the productivity of their large user bases," he says. These companies would not want to risk downtime, such as when recent hacker incidents temporarily tied up some popular Web sites. But Rusk does concede that SDRC's customers might like the ASP concept and take advantage of it occasionally if it were available. "I can see a number of our bigger customers looking to us for this type of environment when they're out of licenses and need a few more to finish up a project, or when they have a short-term need for a particular application, like a special thermal-analysis code" Rusk says. "I think our typical customers would like to have their systems set up so that they always looks to the local installation environment for applications first. But if they request a program that is not available there, and the system has authorized them to have the license served over the Web, that's how they would obtain it."

[177] Richter, R. (June 2000). Getting to Know Your ASP. *Association Management*.

For associates thinking about making the leap to a Web-based system, application service providers may be in their immediate future. A checklist of questions that will help associations evaluate when shopping for an ASP is presented.

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OUTSOURCING
Data Capture, Integration and Analysis Services

[178] ---------- (1999). EFAMRO Market Research - Quality Standards, Version 9, European Market Research Quality Standards (EMRQS).

Report is broken into 3 sections: Managing Research Proposals, Conducting Research Projects, and Specific Types of Market Research.

[179] Fruscione, J. (1995). Outsourcing Document Conversion and Indexing Services, Association for Information and Image Management International.

"Outsourcing" is when an organization hires outside contractors to provide services that were previously provided by the organization's own employees. This book emphasizes how to produce complete service specifications for effective outsourcing arrangements. The audience consists of managers who are considering outsourcing as a method of cutting costs. The purpose is to provide organizations with a conceptual model for approaching outsourcing.

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OUTSOURCING
Engineering Services

[180] ---------- Coining it in with 3D streaming. *Computers & IT*.

The sheer size of CAD data files has bogged down many an attempt to collaborate the design effort over the Internet. But there are alternatives.

[181] ---------- Engineering Design Process: 4 pgs.

There are numerous ways to define the phases of the engineering design process. For our purpose, we have chosen to present it as a five-step process: System Requirements, Potential Approaches, Feasibility Analysis &Selection Process, Detailed Design, Implementation and Test. However one chooses to lump the individual steps, the important point is that a process does exist. The engineering design process is as important to the design engineer, as the scientific method is to the scientist.

[182] ---------- For All You Do, This E's For You. *Computers & IT*: 3 pgs.

Dave Wilson digs into what the new buzzword E-engineering really means and finds out that there's more to it than meets the eye.

[183] ---------- (1997). OpenGIS Simple Features Specification. Alexandria, VA, For OLE/COM: 118 pgs.
http://www.opengis.org/vision.html

The Open GIS Consortium, Inc. vision statement states that "OGC envisions the full integration of geospatial data and geoprocessing resources into mainstream computing and the widespread use of interoperable geoprocessing software and geospatial data products throughout the information infrastructure." As an OLE/COM based proposal, current Microsoft technologies for database access were evaluated with respect to geographic information processing. These technologies included ODBC, DAO, RDO, ADO and OLE DB. ADO specifically provides the OLE Automation object oriented standards for accessing and manipulating databases, additionally OLE Automation, as a language independent technology, is quickly becoming the standard for application customization and integration. These paradigms match the needs of GIS data access quite well; GIS can, and should, be considered a database problem with the additional requirements being geodetic coordinate systems, geometry, and graphics display. This specification addresses these additional problems with GIS specific interfaces above and beyond the current interfaces available through current Microsoft data access technologies. This specification does not take on the responsibility of database technology interfaces however, as many data sources are not true databases. This specification is designed to take full advantage of accepted industry standards thus providing a geographic standard and evolution of that standard that minimizes the impact on the GIS technology providers and yet provides the GIS users with the interoperability and integration they demand. This strategy is not unique to geographic information systems, and as such, Microsoft has leveraged its success and experience with DAO and RDO to provide extensible and robust data access technology through OLE DB. This specification is, then, based on use of the OLE DB and ADO facilities provided by Microsoft.

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[184] Bevan, N. (1995). Human-Computer Interaction Standards. Proceedings of the 6th International Conference on Human Computer Interaction. Yokohama, Elsevier.

It is often assumed that a standard means a precise specification. Such standards have brought benefits in many fields, e.g.,: bolts which screw into nuts, ATMs which can read credit cards, and compilers which can read programming languages. Some HCI standards are also of this type: many design guides provide a detailed specification of the nature of the user interface. Although standard user interfaces provide the benefit of consistency, they become out of date as technology changes, and are usually only appropriate for limited types of users and tasks (Bevan and Holdaway, 1993). Thus most work on international standards for HCI has not been about precise specification, but instead has concentrated on the principles which need to be applied in order to produce an interface which meets user and task needs. These standards broadly fall into two categories. One is a "top-down" approach which is concerned with usability as a broad quality objective: the ability to use a product for its intended purpose. The other is a product-oriented "bottom-up" view which is concerned with aspects of the interface which make a system easier to use. The broad quality view originates from human factors, and standards of this type are applicable in the broad context of design and quality objectives. The product-oriented view concentrates on the design of specific attributes, and relates more closely to the needs of the interface designer and the role of usability in software engineering (see Bevan, 1995). Section 4 explains how standards can be used to provide a means of meeting the requirements for the operator-computer interface in the European Directive on Display Screen Equipment.

[185] Bevan, N., and Curson, I. Methods for Measuring Usability.

The tutorial explains the benefits of measuring usability as part of a user-centred design process, and introduces the participants to the methodology for usability measurement developed by the collaborative European ESPRIT MUSiC (Measurement of Usability in Context) project. The tutorial includes demonstration of the use of MUSiC tools, and class exercises to apply the methods to case studies.

[186] Bevan, N., and Curson, I. Planning and Implementing User-Centred Design Using ISO 13407. Teddington, Middlesex, TW11 0LW, UK, National Physical Laboratory, Usability Services: 3 pgs.

The tutorial introduces participants to the forthcoming International Standard "Human centred design processes for interactive systems" (ISO CD 13407), and gives an overview of practical techniques which support the processes outlined in the standard. The INUSE consortium of usability practitioners has developed a set of core techniques to support the human-centred design process, selected on the basis of their applicability, maturity, stability, availability, and cost-effectiveness. The tutorial explains the basis for choosing appropriate techniques, and gives an overview of each method. The techniques are divided into three categories: Planning, Early Lifecycle and Late Lifecycle. The methods covered are: Planning - ISO 13407 checklist, usability context analysis, usability maturity assessment; Early lifecycle - guides and standards, rapid prototyping, usability inspection methods; Late lifecycle - performance measurement method, user satisfaction, adherence to guides and standards.

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[187] Buehler, K., and McKee, L. (Eds.) (1998). The OpenGIS® Guide - Introduction to Interoperable Geoprocessing and the OpenGIS Specification, by the Open GIS Consortium Technical Committee: 114 pgs.

The members of the Open GIS Consortium Inc. (OGC) see GIS, remote sensing, automated mapping and facilities management, traffic analysis, geopositioning systems, and other geospatial technologies entering a period of radical integration. This book is for people who want to understand how this integration will happen. It is for technology builders and technology managers working in the geospatial domain, and for technology builders and technology managers working in the larger Information Technology domain that is about to receive geospatial capabilities. The Guide is not a programming manual or detailed specification document, but it provides the conceptual foundation needed by programmers and technical managers who are preparing to participate in the OGC Technical Committee or are preparing to implement software interfaces that conform to OpenGIS Implementation Specifications. OpenGIS Implementation Specifications are detailed software specifications that give software developers explicit instructions for writing software that will interoperate with OpenGIS Specification-conformant software written by other developers around the world. Current drafts of the OpenGIS Abstract Specification, which provides the rationale and context for the implementation specifications, become publicly available when OpenGIS Implementation Specifications are released.

[188] Crow, K. (1996). Customer-Focused Development with QFD, DRM Associates: 42 pgs.

Quality must be designed into the product, not inspected into it. Quality can be defined as meeting customer requirements and providing superior value. This focus on the customer places an emphasis on techniques such as Quality Function Deployment to help understand customer needs and provide superior value. Quality Function Deployment (QFD) is a structured approach to defining customer needs or requirements and translating them into specific plans to produce products to meet those requirements. The "voice of the customer" is the term to describe these stated and unstated customer needs or requirements. The voice of the customer is captured in a variety of ways: direct discussion, surveys, customer specifications, observation, warranty data, field reports, etc. This understanding of the customer requirements is then summarized in a product planning matrix or "house of quality". These matrices are used to translate higher level "what's" or requirements into lower level "how's" or means to satisfy the requirements. While the QFD matrices are a good communication tool at each step in the process, the matrices are the means and not the end. The real value is in the process of communicating and decision-making with QFD. QFD is oriented toward involving a team of people representing the various functional departments that have involvement in product development: Marketing, Design Engineering, Quality Assurance, Manufacturing/ Manufacturing Engineering, Test Engineering, Finance, Product Support, etc. The active involvement of these departments can lead to balanced consideration of the requirements or "what's" at each stage of this translation process and provide a mechanism to communicate hidden knowledge - knowledge that is known by one individual or department but may not otherwise be communicated through the organization. The structure of this methodology helps development personnel understand essential requirements, internal capabilities, and constraints and design the product so that everything is in place to achieve the desired outcome - a satisfied customer. QFD helps development personnel maintain a correct focus on true requirements and minimizes misinterpreting customer needs. As a result, QFD is an effective communications and a quality planning tool.

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[189] Ganeshan, R., and Prakash, S. (1996). Collaborative Design Systems - An Annotated Bibliography. Los Angeles, CA, IMPACT Laboratory: 25 pgs.

This report reviews design environments with a special emphasis on their support for collaborative work. The research articles in this review are drawn from three areas of research (with a focus on engineering design): Concurrent/collaborative engineering, Computer-supported cooperative work (CSCW), and Distributed Artificial Intelligence (DAI). Collaboration support offered by commercial CAD system vendors have also been reviewed. The review focuses mainly on civil and mechanical engineering domains, with selected articles from software engineering domain being cited where relevant.

[190] Gruhn, V., and Wellen, U. Process Landscaping: Modeling Complex Business Processes. Dortmund, Germany, University of Dortmund, Software Technology: 19 pgs.

Business processes usually cover various activities. Software processes as an example of business processes cover activities like configuration management, quality management and project management issues. Models of these processes tend to become rather complex. Mechanisms to structure these models are needed. The same applied to various other kinds of business processes. The process landscaping approach allows to model processes on different abstraction levels without loosing the overview about the whole framework of processes and their interfaces. It also ensures that key decisions about processes are not burdened by an overwhelming amount of detail. In this article we discuss the method of process landscaping in the light of a real-world software process, we formalize some of the most important terms around the notion of a process landscape and we use this formalization to formulate some consistency conditions for process landscapes.

[191] Hochmuth, R., Meerkamm, H., and Schweiger, W. (1998). An Approach to a General View on Tolerances in Mechanical Engineering. Nuremberg, Germany, University of Erlangen: 9 pgs.

In this paper an approach will be made to a general view on tolerances in mechanical engineering, especially on tolerancing and optimising tolerance specifications by five major strategies. To improve the quality of a product the tolerancing problem may not be seen isolated, also adjoining subjects have to be considered, as the stiffness and elastic deformation of machine parts, the construction structure, manufacturing processes, the assembly of components and the use of a product (multi-criterial optimisation). One of the possibilities is the use of tolerance controlled constraints. These consequences of the product tolerancing will have to be investigated by the designer during the design process. Therefore, computer supported tools, which are integrated into an Engineering Workbench (overall architecture) to support the activities of the designer in each stage of the product development process, help to solve design conflicts.

[192] Koonce, D. A. Information Model Level Integration for CIM Systems: A Unified Database Approach to Concurrent Engineering, Ohio University: 8 pgs.

In traditional manufacturing systems engineering, systems are designed around the transformation process of raw materials into usable components or materials. These systems are value added processes, such as materials processing, or support systems such as scheduling. In the last thirty years, information has become an important resource to manage in the

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manufacturing environment. Unfortunately, information is poorly managed in many manufacturing systems. Highly automated computer systems that are not well interfaced are often referred to as "islands of automation." They increase the efficiency in their departments without aiding activities outside of their areas. This lack of interfacing can often be traced to a lack of understanding of the mappings between data in the individual systems. A new methodology for expressing these mappings will aid designers in developing the interfaces between these island systems.

[193] Lin, E., Minis, I., Nau, D.S., and Regli, W.C. (1995). Contribution to Virtual Manufacturing Background Research. College Park, MD, Institute for Systems Research, University of Maryland: 79 pgs.

In this document, we identify, assess and categorize research and applications relevant to key aspects of Virtual Manufacturing (VM). The authors identify gaps in these research and application efforts, and present an outlook for the future of VM technologies.

[194] Monczka, R. M. Integrating Suppliers into the Product Development Process.

Many companies are involving suppliers earlier in the design and development process in order to gain competitive advantages in terms of innovation, quality and cycle time. Researchers at The Global Procurement and Supply Chain Benchmarking Initiative at Michigan State University, led by Robert M. Monczka, have been studying strategies and best practices for integrating suppliers into new product development efforts.

[195] Scott, M. (2000). "GIS, Modern Mineral Potential Modeling and Quantitative Resource Assessment: Implications for the Geological Survey of Queensland." *AIG Journal* – Applied Geoscientific Research and Practice in Australia: 16 pgs.

The Geological Survey Office (GSO) undertook a pilot study with the objective of assessing the ability of Survey data to support modern quantitative mineral potential modeling techniques. The Yarrol pilot project was designed to audit digital data sets routinely produced by the GSO, and to provide mineral assessment outputs relevant to both industry and Government decision-making processes. The study focused on the estimation of mineral potential using modern quantitative methods including the USGS three-part resource assessment methodology. Mineral potential was assessed for porphyry-copper-type deposits in part of the Yarrol Province, central Queensland establishing: 1. ground permissive for the occurrence of copper-type porphyry deposits; 2. zones favorable for the occurrence of such deposits using computer-based prospectivity modeling techniques; and 3. estimates of the number of potential undiscovered deposits (probability of occurrence modeling). In this study the statistical technique 'weights of evidence' was used for prospectivity modeling in a general PC GIS software environment. The application processes used and the results of the Yarrol case study are reported in this paper, as well as the implications for the operations of the Geological Survey.

[196] Visionary Design Systems, Inc. (1999). e -Engineering White Paper: Cost Reduction and Profit Improvement Through Design Chain Integration. Santa Clara, CA, Visionary Design Systems, Inc: 13 pgs.

e-Engineering is the creation of a dynamic, integrated product development and realization process, one with the necessary agility and deftness to respond to the demands of an

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e-Commerce world. e-Engineering stems from a recognition that for companies to reap maximum benefit from the large investments and considerable pain in implementing Enterprise Resource Planning (ERP), the product process which feeds into the Supply Chain must be optimized. This product process is the Design Chain, the interlinked contributors to the creation and realization of a product. The Design Chain is not only R&D, but customers, marketing, suppliers, production, etc.

[197] Wilson, J. D. Top Companies Vie for Position in the GIS Universe: 8 pgs.

The GIS market enjoyed strong growth in 1998 - possibly as high as 20 per cent - and the prospects for 1999 may be just as bright, according to analysts. But underneath the rosy numbers, changes are afoot. As a technology and an industry, GIS is experiencing one of the most active periods of change in its 30-year history. Users stand to benefit with improved products, more standardized systems, better integration, easier maintenance, lower costs of acquisition and maintenance and greater out-of-the-box functionality. Software developers and service providers also stand to benefit, but only if they can navigate the uncertain waters of change and marshal their resources to meet increasingly demanding user requirements.

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[198] ----------. Demand Analysis of Integrated, Multiprocess HR Outsourcing: Focus Report. Excerpt from Gartner/Dataquest's Human Resource Report.

[199] ---------- (2000). "Index of Past Articles Published in Outsourcing Employee Benefits Report." http://www.benefits-outsourcing.com/index_of_articles_published.htm

Current index of past articles published in Outsourcing Employee Benefits Report. Categories include: Automatic Data Processing, Benchmarking, Benefits Service Representatives, Communication, Contracts, Cost, Data Cleanup, Disaster Planning and Recovery, Employee Self-Service, Employer Case Studies in Outsourcing, Enrollment, Enpatriate Support Services, Fidelity Investments, Hewitt Associates, Human Resources Outsourcing, Implementation, Insourcing, Integrated Outsourcing, Internet/Intranets, Kwasha Lipton Group, Outsourcing Strategy, Plan Participants, QDROs, Request for Proposal (RFP), Retirement Benefits, Service Centers, Shared Services, Site Visits, Staffing, Strategic Vendor Alliances, Survivor Affairs, Technology, Towers Perrin, Vendors, Vendor Management, Vendor Selection, and Wellspring Resources LLC.

[200] ----------. http://www.ocp.co.uk/trends.htm

Leading companies are re-thinking the ways in which HR operations can be delivered as part of a process of transforming the HR function. Outsourcing is a well-established part of this change process and it is going to increase over the next 3 to 5 years, with individual services being outsourced to specialist suppliers.

[201] ----------. http://www.outsourcing-backoffice.com/

The original definition of a non-core competency in any process that does not generate income or help your company increase its market share. Back office operations rarely meet either criterion, making them a perfect candidate for outsourcing. The first benefit is financial. The second benefit is a competitive edge. OutsourcingBackoffice offers a start by providing articles, case studies and research.

[202] ----------. www.outsourcing-hr.com

The human resources (HR) function touches each person in a company either directly or indirectly. So it is critical to have the proper tools available to ensure lasting benefits in an HR outsourcing relationship. OutsourcingHR offers a start by providing articles, case studies and research in the area of HR and employee transition.

[203] Caldwell, B. (1997). Remote Access On The Rise -- Outsourcers Tapped to Support Telecommuting, *Information Week*, CMP Media, Inc. 1997. http://www.techweb.com/se/directlink.cgi?IWK19970714S0057

A survey of 106 human resource executives at large companies finds that nearly one-quarter have employees who work remotely at least part of the time. Those numbers are expected to rise as companies find that telecommuting can increase their competitiveness. But the

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investments and resources needed to support telecommuters can be prohibitive for all but the largest companies. Those costs also are fueling a drive toward outsourcing telecommuting support.

[204] Cook, M. F. (1999). Outsourcing Human Resources Functions: Strategies for Providing Enhanced HR Services at Lower Cost. New York, NY, AMACOM.

Every so often an idea comes along that is so compelling it has the power to reshape an entire profession - in this case, human resource management (HRM). Today, all across North America, Europe, and Asia, human resources (HR) executives are considering or actively making plans for outsourcing all or part of the HR function. Outsourcing is the corporate buzzword; it is not a fad. Part I: Identifying Critical Outsourcing Issues, Making the Decision, and Establishing a Plan; Part II: Defining the Work to be Performed, Choosing a Vendor, and Communicating the Decision; Part III: Outsourcing Specific Elements of HR; Part IV: Managing HR Outsourcing Over Time.

[205] Duran, X. (October 1997). Discussion Paper on Outsourcing HR - Treasury Board of Canada Secretariat in collaboration with The Personnel Renewal Council. Carleton University Business School.

Outsourcing is getting a lot of press. Given the attention it is receiving and the impact it can have on organizations, it is important to have an understanding of the topic. This discussion paper seeks to provide a down-to-earth review of some of the crucial issues. It is designed to provide an overview of the literature, as well as some aggregate data and lessons learned from federal government departments, as well as agencies and Crown corporations. This paper neither generally advocates nor discourages outsourcing HR work in the public sphere. Moreover, it should be read in conjunction with the contracting policy in place in your organization. Public Service organizations, like their private-sector counterparts, have different cultures and methods of operation. They vary in size and have different tasks and constraints. Their strengths and weaknesses vary. The ideal solution for one organization may prove troublesome for others; outsourcing may be appropriate for some and inappropriate for others. Therefore, it is important to look at every potential outsourcing initiative on its own merit. It should be noted at the outset that some HR functions in the public sector have been outsourced for years. The federal government, for example, outsources medical and dental administration. Moreover, the results of a 1997 Personnel Renewal Council/Treasury Board of Canada Secretariat (PRC/TBS) survey indicate that numerous other human resource functions have been, and continue to be, outsourced either to the private sector or to other organizations in the federal sphere. Highlights from this survey are discussed throughout this paper.

[206] Greer, C.R., Youngblood, S.A., and Gray, D.A. (October 1, 1998). Human Resource Management Outsourcing: The Make of Buy Decision.

Just-in-time human resource management, sell and lease back human resource (HR) programs, and do-it-yourself HR -- all of these phrases characterize how some companies manage outsourced HR functions. The authors found that companies use HR outsourcing for both operational and strategic reasons. Intensive interviews with senior HR executives and professionals in 25 organizations were conducted to identify outsourcing rationales and consequences. As a result of our interviews we developed several guidelines for selecting

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vendors, managing the outsourcing transition, managing vendor relations, and monitoring vendor performance. HR outsourcing is not a fad and it can enhance the HR value chain as well as support the development of HR as a business partner and strategic contributor to the organization's goals.

[207] Harkins, P. J., Brown, S.M., and Sullivan, R. (1996). Outsourcing and Human Resources: Trends, Models, and Guidelines, LER Press.

What should you outsource? Why should you outsource? How should you outsource? This book discusses these and other critical issues involved in outsourcing within the human resources context. In so doing, the book provides a context for understanding outsourcing, models to implement outsourcing, and specific skill chapters on how to outsource.

[208] Kalleberg, A. L., Knoke, D., and Marsden, P.V. (1996). Interorganizational Networks and the Changing Employment Contract. International Social Network Conference, London, England. www.soc.umn.edu/~knoke/pages/nos96.htm

Many companies are dismantling their internalized system of mutual obligations between employees and the firm, relying more on external labor markets to provide labor power in the form of contingent workers and training services. The primary focus is on changes in the ego-centered networks of relations connecting employers to those organizations from which they recruit and train employees. To understand the durability of these relations and how networking processes change as a means of obtaining human resources, we present hypotheses about the conditions affecting the form and content of a focal organization's occupation-specific interorganizational relations, including the effects of environmental instability, tight labor markets, unionization, and institutional constraints. The authors will conduct a 1996-98 national panel survey of U.S. establishments to track these changes.

[209] Medcof, J. W., and Needham, B. (1998). "The Supra-Organizational HRM System." *Business Horizons*, Indiana University Kelley School of Business: 43-50. http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?BH001

As more "new economy" organizations externalize their human resource infrastructure, interfirm alliances are springing up in which some HRM work can be done on a cooperative basis. This moves HRM work, as traditionally defined, outside the corporation. External HRM service providers can no longer be considered as piecemeal contractors; they must be regarded as an increasingly integrated supra-organizational HRM system. As this system grows in scale, it raises significant operational and strategic issues and creates new challenges for line managers. Among these challenges are the development of new operational skills by HRM professionals, an understanding of the correlated supra-organizational IT system, the risks of disclosing proprietary information, the danger of breaching the confidentiality of individual workers, and the compatibility of a contingent work force with organizational culture.

[210] Mould, J. (1999). Outsourcing Human Resource Solutions. *Internetworking Inc*.

Recent improvements in Internet-based technologies have forced businesses to reevaluate the ways they conduct business. Simply being connected to the Internet is no longer sufficient for companies. They must now provide services to both their customers and employees over this channel. Systems such as electronic commerce, sales force automation, data warehousing, and

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human resource solutions are all areas where these companies are tapping the Internet. Outsourcing solutions can provide a cost-effective and efficient service to businesses of all sizes. It is obvious that in order for companies to succeed they must provide solutions to their customers; however, employees of these companies are now demanding Internet-based solutions for their needs. Of all corporate departments that feel the need to give employees greater access to information on the Internet, it is human resource departments that feel the need most strongly. However, small to mid-sized companies cannot afford to dedicate the employees and time required to set up and maintain these highly technical systems. It has become increasingly obvious that outsourcing these solutions and other business needs are the preferred method of conducting business. Over the last few years outsourcing has gained both momentum and acceptance with IT departments in businesses of all sizes.

[211] PricewaterhouseCoopers. CFO's Guide to Human Resource Outsourcing.

Leading companies know that if they want to a competitive advantage in the marketplace they need to achieve greater efficiencies in support functions as well as in core operations. As a results, companies are transforming the management of key support areas such as human resources by utilizing outsourcing partners. Human resources outsourcing arrangements typically handle a range of functions, including payroll, training, administration, relocation services, and benefits administration. A landmark global study commissioned by PricewaterhouseCoopers (PwC), a leader in business process outsourcing, found a high degree of satisfaction among companies that have outsourced human resources. Nine in ten report they are "satisfied" with their results and six in ten say cost reductions meet or exceed expectations. Human resources outsourcing is "the hottest area of outsourcing today," according to Peter Bendor-Samuel, managing editor of InfoServer, an online publication on outsourcing, and CEO of the consulting company, Everest Group, based in Dallas, Texas. "It's exploding," remarks Bendor-Samuel.

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OUTSOURCING
Multimedia and Animation Services

[212] Christodoulou, S. P., Styliaras, G.D., and Papatheodorou, T.S. (1998). Evaluation of Hypermedia Application Development and Management Systems. Proceedings of the Ninth ACM Conference on Hypertext and Hypermedia: Links, Objects, Time and Space—Structure in Hypermedia Systems, Pittsburgh, PA.
http://www.acm.org/pubs/citations/proceedings/hypertext/276627/p1-christodoulou/

In this paper the author's propose and study a framework for evaluating Hypermedia Application Development and Management Systems (HADMS) in relation to specific application requirements. They address the need for HADMS capable to efficiently support the main users involved in the life cycle of hypermedia applications, namely designers, programmers/implementors, authors/administrators and end-users. A HADMS consists of a hypermedia application development and management methodology and the respective environment. In this work, they propose and classify a set of evaluation criteria. These are mainly imposed by real life development and the need to support forthcoming, or next generation, features for hypermedia applications. The authors also introduce a simple framework for a comparative evaluation of HADMS. Furthermore, the author's demonstrate the use of the criteria and the framework proposed, for the case of three real-life applications. A representative set of seven HADMS is selected and the evaluation of these systems is carried out, leading to some useful conclusions and suggestions for future work.

[213] Conklin, D. W., Thompson, J., and Weeks, S. (1998). "Malaysia's Multimedia Development Corporation." Richard Ivey School of Business, The University of Western Ontario 98G001: 29 pgs.
http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?98G001

Multimedia Development Corp. (MDC) was established to build and regulate the Multimedia Super Corridor (MSC) in Malaysia. As Malaysia's traditional manufacturing advantage due to low-cost labor dissipated and as the country targeted the year 2020 for achieving developed status, the MSC was being viewed as the catalyst to launch the Malaysian economy into the future. Malaysia's government hoped the MSC could become a hub for high technology in Southeast Asia. In 1997, it was now necessary to involve private sector corporations in refining the MSC concept, setting priorities for development, and establishing the standards that would be imposed on activities in the MSC.

[214] Cowderoy, J., and Cowderoy, A. (1998). Report on the Quality Awareness Publicity Campaign, ESPRIT project 23066: 18 pgs.

A campaign to introduce quality-oriented practices into Europe depends on simultaneously addressing four activities: the provision of theoretical evidence, the provision of practical evidence (and stories for use in the popular press), leadership and pioneering activities, and the provision of an infrastructure of methods, service providers and networking opportunities. MultiSpace has made a start at each of these activities. Plans exist to continue some, and recommendations are given of how other activities could be continued.

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[215] Garzotto, F., Mainetti, L., and Paolini, P. (1997). Designing Modal Hypermedia Applications. Conference on Hypertext and Hypermedia: Proceedings of the Eighth ACM Conference on Hypertext, Southampton, United Kingdom.
http://www.acm.org/pubs/citations/proceedings/hypertext/267437/p38-garzotto/

Different users of a hypermedia application may require different combinations of modes, i.e., different ways of perceiving the content or different ways of interaction. Multimodality - intended as the coexistence of multiple combinations of modes in the same application - can improve application richness and can accommodate the needs of different categories of users. On the other hand, multimodality increases complexity and may affect usability, since a variety of different interaction styles may be disorienting for the users. Designing an effective multimode hypermedia is a difficult problem. This paper discusses this issue, presenting a taxonomy of different kinds of modes in hypermedia applications and introducing the concept of modal hypermedia interaction. Modal interaction means that the semantics of normal application commands are dependent not only on the application state, as usual, but also on mode setting. The authors introduce a formal model for modal hypermedia interaction that helps them to analyze more precisely design alternatives and their impact on usability. The authors illustrate their approach by examples from a museum hypermedia called "Polyptych" that they actually built.

[216] Lowe, D. B., Bucknell, A.J., and Webby, R. (1999). Improving Hypermedia Development: A Reference Model-Based Process Assessment Method. Proceedings of the Tenth ACM Conference on Hypertext and Hypermedia: Returning to our Diverse Roots, Darmstadt, Germany.
http://www.acm.org/pubs/citations/proceedings/hypertext/294469/p139-lowe/

If we are to improve our ability to reliably and consistently create high quality hypermedia applications then we need to improve our understanding of the development process and its relationship to the quality of the end applications. An important aspect in achieving this understanding is the ability to assess the process. This is in turn best facilitated by the use of a suitable process model. In this paper we discuss a model-based approach to the assessment of the development process of hypermedia applications. The authors propose a hypermedia development process reference model which guides the identification of suitable process quality attributes and subsequent assessment activities. They look at how this process assessment can be applied in improving development processes and hence hypermedia applications. They provide some examples that demonstrate the validity of the approach. The result is a technique which is capable of providing significant improvement in the development process and hence the quality of the applications which result from this process.

[217] Streitz, N. A. (1995). “Designing Hypermedia: A Collaborative Activity.” *Communications of the ACM* 38(No. 8): 70-71.
http://www.acm.org/pubs/citations/journals/cacm/1995-38-8/p70-streitz/

While approaches exist for designing hypermedia applications with respect to content, structure, and presentation [2], little attention has been paid to the actual process that individual designers incur (see Nanard and Nanard in this issue) or that groups undergo in collaborative design. Large and complex applications usually require a team of content providers, structure and value adding editors, scenario and script writers, graphic, layout and interface designers, among others. Here, we focus on two aspects of collaboration in a hypermedia design team:

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support for authors deciding jointly on content, structure and presentation; and group meeting support. The collaborative support we provide derives from investigating the cognitive and social aspects of both distributed cooperative authoring of complex hyperdocuments [4] and the face-to-face staff meetings of a hypermedia newspaper's editorial team [3].

[218] Subirana, B., and Zuidhof, M. (1997). “Multimedia: Content Industries.” IESE University of Navarra, Barcelona-Madrid, Spain: 22 pgs.
http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?IES049

Provides an overview of the impact that multimedia information technologies will have on content industries. Divides such industries into entertainment, transactions, learning, communications, and business information.

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OUTSOURCING
Remote Customer Interaction

[219] Kjellerup, N. (May 1998). Outsourcing the Customer Contact.

Any business that is not in the business of fulfilling customer needs should ask itself what business they are really in. Any business that can present a Business Case where the customer is not part of their core business needs to revisit their Purpose for existing. Anyone else needs to carefully MAP out the entire Customer Contact Process and take a hard look at how customer access impacts the profit line before deciding to outsource any interaction with their customer base.

[220] Klungle, R. (1999). Simulation of a Claims Call Center: A Success and a Failure. *Proceedings of the 1999 Winter Simulation Conference*.

This paper addresses the call center management process and the role of simulation in this process. Strengths and weaknesses of workforce management systems and the Erlang-C model are reviewed and the role of discrete event simulation is highlighted. An application in an insurance claims call center is utilized to show the effectiveness of simulation in evaluating call center designs and also the difficulties in selling selected results to management. The paper concludes with some lessons learned about the call center process, discrete event simulation, workforce management systems, and the specific claims application.

[221] Tawfik, J. 10 Principles for Successful Call Center Outsourcing.
http://www.esummitintl.com/archives/00jan/article3priniples.htm

Successful outsourcing of call centre services is all about relationships and how they are managed. The whole process is likened to courting a partner, marrying that partner, and, unfortunately in a lot of instances, divorcing that partner. The 10 principles written about are the ones identified as the most crucial to reducing the divorce rate in call centre outsource relationships. The guide is intended for companies currently engaged or about to engage an outsource partner for a significant portion of their call centre work.

WEB SITES (Community Web Sites for Call centers)

[222] www.callcenternews.com

It is an online resource for call center related news. It provides features such as a newsletter, recent features and a buyer's guide.

[223] www.callcenterops.com

Callcenterops.com provides resources such as a marketplace, a news letter, a press box, call center resources, products and services, operations of call centers, customers, technology, and a call center store.

[224] www.call-center.net

Callcenter.net is the online Call Center Learning Center developed by ACD, and is a comprehensive resource for call center managers. This site provides articles, books,

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benchmarking studies, vendor yellow pages, and updates on technologies and best practices for call centers.

[225] www.helpdeskinst.com

Help Desk Institute (HDI) focuses on the needs of internal and external support organizations and the vendors who support them. HDI seeks to set the standards, establish certification and training programs provide access to industry resources, and to encourage member collaboration. HDI provides targeted information about the technologies, tools, and trends of the help desk and customer support industry, as well as customized training and certification programs for both the individual and site support organization. HDI has more than 3,500 members in North America, and partners in North and South America, Europe, and Asia/Pacific representing an additional 2,000.

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OUTSOURCING
Transcription Services

[226] ----------.
http://www.aamt.org/resourcelist.htm
A rich resource base for issues related to Medical Transcription including - Medical Transcriptionist Job Descriptions, COMPRO (COMpetency PROfile), Full Disclosure in [the Measurement of] Medical Transcription, MT Supervisor, An MT's Bill of Rights, Tip Sheet for Becoming a Self-employed Medical Transcriptionist, AAMT Code of Ethics.

[227] ----------.
http://www.mtindia.org/
Source of useful, up-to-date and accurate information on Indian medical transcription business and the global industry. To provide a forum for Indian industry representatives and professional transcriptionists to exchange information, and provide a strong platform to project themselves and their business interests globally. To act as a guide to the Indian medical transcriptionists and industry on initiatives in setting, recommending and ensuring high business standards while embracing ethical business practices, and taking an active role in protecting health information confidentiality. To promote superior performance standards for the Indian Medical Transcription Industry in the areas of technology, training, quality, marketing and growth.

[228] ----------. Facility Administrator Questionnaire.
http://www.google.com/search?q=cache:www.alphabest.com/ab/Provider/provider_q4.htm+%22Transcription+Service%22+%22Process%22+%22Quality+Assurance%22&hl=en

[229] ----------. Medical Transcription Networking Center.
http://www.mtdaily.com/indexie.html
This website is a community of online MTs and students. It also provides text for physicians. It enables sharing of information and researching.

[230] ----------. Flow of Patient Health Information Inside and Outside the Healthcare Industry

[231] ----------. (March 1999). Trends in Healthcare Information and Technology. The 10th Annual HIMSS Leadership Survey Sponsored by IBM.

[232] Amatayakul, M. Getting Ready for HIPAA Privacy Rules.
http://www.ahima.org/journal/features/feature.0004.5.html
What do the proposed privacy regulations mean to HIM professionals—and what can you do now to begin to prepare? The author takes an in-depth look at the proposed rules.

[233] AHIMA (American Health Information Management Association). FAQ about AHIMA Coding Certification.

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https://secure.ahima.org/certification/cfaqs.html

Answers to the most commonly asked questions about the Certified Coding Specialist (CCS) and Certified Coding Specialist—Physician-based (CCS-P) credentials."

[234] AHIMA (American Health Information Management Association). Data Quality Models - Information on Data Quality Management (DQM)?
http://www.ahima.org/hot.topics/dqm.html

The latest resources on data quality management models, data dictionaries, building your own DQM, and more is available on this site.

[235] Carpenter, J.E. (Originally prepared by Mary D. Brandt). Practice Brief: Information Security: A Checklist for Healthcare Professionals (Updated).
http://www.ahima.org/journal/pb/00.01.html

There are many aspects to consider in protecting the confidentiality of both paper-based and computer-based health information. Healthcare organizations should develop policies and procedures to address these issues with input from a multidisciplinary group that understands the organization's risks and security needs. The Health Insurance Portability and Accountability Act of 1996 has brought information security to the forefront for healthcare organizations.

[236] Davis, T.A., Friedman, S., and Tessier, C. Transcription Processes and Issues. Prepared for CobraMed, CareFlow Net Inc., and AAMT.
http://www.acl.lanl.gov/OMG/CORBAmed/Careflow/TranscriptionProcessIssues.htm#sum

This White Paper is meant to describe the gamut of current and future processes, to describe the issues involved, and to suggest possible areas, which CORBAmed could pursue as areas to promote RFPs.

[237] Gale Group (Health Data Management). (September 1, 1999). For Physicians, Talk is Cheap – *Office.com*
http://www.office.com/global/0,2724,61-12887,FF.html

An article on use of technology in medical transcription.

[238] HL7.
http://www.hl7.org/

Health Level Seven is one of several ANSI-accredited Standards Developing Organizations (SDOs) operating in the healthcare arena. Most SDOs produce standards (sometimes called specifications or protocols) for a particular healthcare domain such as pharmacy, medical devices, imaging or insurance (claims processing) transactions. Health Level Seven's domain is clinical and administrative data. Headquartered in Ann Arbor, MI, Health Level Seven is like most of the other SDOs in that it is a not-for-profit volunteer organization. Members of Health Level Seven are known collectively as the Working Group, which is organized into technical committees and special interest groups. The technical committees are directly responsible for the content of the Standards. Special interest groups serve as a test bed for exploring new areas that may need coverage in HL7's published standards. What Does the Name HL7 Mean - "Level Seven" refers to the highest level of the International Standards

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Organization's (ISO) communications model for Open Systems Interconnection (OSI) - the application level. The application level addresses definition of the data to be exchanged, the timing of the interchange, and the communication of certain errors to the application. The seventh level supports such functions as security checks, participant identification, availability checks, exchange mechanism negotiations and, most importantly, data exchange structuring.

[239] Hughes, G. Practice Brief: Letters of Agreement/Contracts.
http://www.ahima.org/journal/pb/00.07.html

Typically, the HIM professional secures contracts for transcription, record copying, imaging, record storage, coding, consulting, or other outsourcing services. Although contracts can prevent confusion and conflict, they can also bind the inattentive signer to conditions that are difficult or impossible to meet. The purpose of this brief is to empower HIM professionals to draft, review, and secure sound, discerning contracts.

[240] Surpin, J., and Weideman, G. (1999). Outsourcing in Health Care: The Administrator's Guide. Chicago, IL, AHA Press, Health Forum, Inc.

Properly planned and managed, outsourcing makes it possible for health care organizations to focus on the core of their business while leaving routine support tasks to qualified vendors. This books offers practical insights into the benefits of outsourcing and provides a step-by-step process that will enable hospital management teams to make informed decisions about engaging in the outsourcing of their clinical and nonclinical services. It guides readers through the process of developing an approach to outsourcing and assists them in determining which services, departments, or functions may be outsourced most effectively. Chapters include topics such as: using outsourcing to improve the delivery of services; developing an outsourcing strategy, soliciting proposals, and awarding a contract; evaluating an internal service, department, or function for outsourcing; and setting performance levels for outsourcing contracts.

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OUTSOURCING
Call Center

[241] Read, B. B. (2001). Designing the Best Call Center for Your Business: A Complete Guide for Location, Services, Staffing, and Outsourcing. San Francisco, CA, McGraw-Hill.

"Designing the Best Call Center for your Business" examines all key aspects of opening and expanding a live agent call center, with in-depth coverage on facilities and workstation design, site selection, including communications and power backups, finding the right property and staff recruiting, training and retention. It covers domestic and international call centers and those that handle online as well as voice interactions. In addition, the book looks at technology-only, outsourcing and teleworking call center alternatives and call demand-managing adjuncts. The book also explores what functions and value call centers can offer businesses, including outbound and inbound sales and customer service and help desk. It examines and suggests how to cope with hot issues that could affect the center such as the CRM trend and growing customer hostility to outbound cold-calling and unsolicited e-mail.

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STANDARDS

[242] Bevan, N. Quality and Usability: A New Framework. Teddington, Middlesex, National Physical Laboratory: 8 pgs.

ISO/IEC 9126 (1991) established a practical way of decomposing software quality into a set of characteristics and subcharacteristics. Reconciling this approach to quality with a new standard for usability (ISO 9241-11) has led to a comprehensive framework for software product quality which is being incorporated in a revision to ISO/IEC 9126. The new framework defines three perspectives: internal quality (static properties of the code), external quality (behavior of the software when it is executed) and quality in use (whether the software meets the needs of the user when it is in use). Quality in use is a broader view of the concept of usability defined in ISO 9241-11. ISO/IEC 14598 describes a process for evaluating software product quality which is consistent with this model.

[243] Draft International Standard ISO/DIS 9001 (2000) Quality Management Systems – Requirements.

This international standard specifies requirements for a Quality Management System that can be used by an organization to address customer satisfaction, by meeting customer and applicable regulatory requirements.

[244] International Organization for Standardization - Technical Committee ISO/TC 176. (2000). ISO 9001:2000 Quality Management Systems - Requirements, Third Edition: 23 pgs.

This international standard is for internal and external parties, including certification bodies, to assess the organization's ability to meet customer, regulatory, and the organizations own requirements. This international standard specifies requirements for a quality management system to enhance customer satisfaction through the effective application of the system, including processes for continual improvement. This international standard promotes the adoption of a process approach when developing, implementing, and improving the effectiveness of a Quality Management System to enhance customer satisfaction by meeting customer requirements.

[245] International Organization for Standardization. (1997). ISO 9000-3:1997 Indian Standard - Quality Management and Quality Assurance Standards, Part 3 Guidelines for the Application of ISO 9001:1994 to the Development, Supply, Installation, and Maintenance of Computer Software: 33 pgs.

This part of ISO 9000 sets out guidelines to facilitate the application of all the twenty clauses of ISO 9001:1994 for organizations developing, supplying, installing, and maintaining computer software. It identifies the issues that need to be addressed and is independent of the technology, life cycle models, development processes, sequence of activities, or organizations structure used by the supplier.

[246] International Organization for Standardization - Technical Committee ISO/TC 207. (1996). ISO 14010 Guides for Environmental Auditing - General Principles: 10 pgs.

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This international standard provides the general principles of auditing that are applicable to all types of environmental audits. It describes the requirements for an environmental audit and auditing principles.

[247] International Organization for Standardization - Technical Committee ISO/TC 207. (1996). ISO 14011 - Guidelines for Environmental Auditing - Audit Procedures - Auditing of Environmental Management Systems: 12 pgs.

This international standard establishes audit procedures that provide for the planning and conduct of an audit of an Environmental Management System (EMS) to determine conformance with EMS audit criteria. This describes EMS objectives, roles, and responsibilities of the audit team and the client. It also explains the various steps involved in Auditing.

[248] International Organization for Standardization - Technical Committee ISO/TC 207. (1996). ISO 14012 Guidelines for Environmental Auditing - Qualification Criteria for Environmental Auditors.

This international standard provides guidance on qualification criteria for auditors and lead auditors. It describes the minimum education and work experience, personal attributes, and skills required to become an auditor. It also covers the auditor training and criteria to become a Lead Auditor and maintenance of competence.

[249] International Organization for Standardization - Technical Committee ISO/TC 176. (August 1994). ISO 9001:1994 Indian Standard - Quality Systems - Model for Quality Assurance in Design, Development, Production, Installation and Servicing, First Revision: 23 pgs.

This international standard specifies quality system requirements for use with supplier's capability to design and supply conforming product needs. This standard gives the 20 clauses for a supplier, to demonstrate its capabilities in design, development, production, installation, and servicing and thus gives confidence to customers in product conformance.

[250] ISO (1998). Selection and use of ISO 9000, International Organization for Standardization: 11 pgs.
http://www.iso.ch/

This brochure provides you with: a list of the ISO 9000 quality standards and guidelines, plus other ISO 9000 publications by ISO; examples of typical applications of the documents; a step-by-step outline of their selection and use; a brief view of the future evolution of the ISO 9000 family.

[251] ISO 9004-2 (1991). Quality Management and Quality System Elements, Part 2 – Guidelines for Services.

This part of ISO 9004 gives guidance for establishing and implementing a quality system for a newly offered or modified service. It can also be applied directly when implementing a quality system for an existing service. The quality system embraces all the processes needed to provide an effective service from marketing to delivery, and includes the analysis of service provided to customers.

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[252] ISO / TC 176 / SC2 / N376. Formal Output of TC 176 / SC2 / WG15 on "Quality Management Principles and Guidelines on Their Application."

This document provides an understanding of the benefits for the organization when using the Quality Management Principle.

[253] National Institute of Standards and Technology. Malcolm Baldrige Board of Examiners. http://www.quality.nist.gov/

This Web site provides the criteria to become a member of the Board of Examiners for the Malcolm Baldrige National Quality Award. It also describes the selection process to become a member of the MBNQA Board of Examiners. After short-listing, a three-day training is administered based on the given criteria.

[254] National Institute of Standards and Technology. Malcolm Baldrige Score Book for Business, Education, and Health Care: 60 pgs. http://www.quality.nist.gov/PDF%20files/2000%20Scorebook.pdf

This Scorebook provides Examiners with a concise, organized, and standardized method to record their comments and scores as they evaluate an applicant for the Malcolm Baldrige National Quality Award. In Stage 1, this Scorebook is used to record the individual Examiner's findings. In Stages 2 and 3, the Scorebook is used to record the findings of the Examiner Team. A suggested process for Scorebook completion illustrates a systematic method for evaluating an applicant. It describes the scorebook development process, and covers the recommended process for evaluating applications and completing scorebooks. The process has been described under four steps: Step 1-prepare; Step 2-evaluate; Step 3-finalize; and Step 4-return. It also provides the guidelines for writing comments and how to prepare score summary sheet.

[255] Nell, J. (1999). STEP on a Page, National Institute of Standards and Technology: 1 pg.

STEP on a Page provides a graphic summary of the progress of STEP, Standard for the Exchange of Product Model Data, the familiar name for ISO 10303, ISO TC 184 SC4, Industrial-Automation Systems and Integration/Industrial Data develops the STEP standard.

[256] Secretariat of ISO/TC 176/SC 2 (1997). Quality Management Principles and Guidelines on their Application: 20 pgs.

This document provides an understanding of the Quality Management Principles that will facilitate a successful management culture for users of the ISO 9000 Family of standards and guidelines. The Quality Management Principles will be contained in the new ISO 9004 document. The ISO 9000 Family of standards will be based on these Quality Management Principles. With growing global competition, quality management is becoming increasingly important to the leadership and management of all organizations. The Quality Management Principles apply universally to all user groups. This document focuses on the needs of executive managers. The Quality Management Principles may be incorporated into new or existing documents to satisfy the needs of other user groups. By applying the following eight Quality Management Principles, organizations will produce benefits for customers, owners, people, suppliers, local communities and society at large.

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STANDARDS
Articles and Reports

[257] American Society for Quality.
http://www.asq.org/

This Web site introduces many topics on Quality, Standards, and Certification which provide information on the ISO 9000 and ISO 14000 standards, QS-9000 requirements, and ASQ certification programs. This also gives information about the ASQ products.

[258] Campden, & Chorleywood Food Research Association Group. BS EN ISO 9000 Auditor/Lead Auditor Training.
www.campden.co.uk/training/event2000/qem3.htm

This gives the course content for the BS EN ISO 9000 auditor/lead auditor training. This course is designed specifically for the food and drink industries and provides delegates with a thorough understanding of BS EN ISO 9000 and the audit process through the use of a case study based on a food operation. This course is certificated by the IRCA Registration Governing Board (A2462) and satisfies part of the formal training requirement for individuals seeking registration under the IRCA Auditor Registration Scheme.

[259] International Organization for Standardization. ISO 14000 Environmental Management Systems Lead Auditor Training.
www.treeo.ufl.edu/environment/EMSAuditor.htm

This course is designed to prepare participants to conduct Environmental Management System Audits to the ISO 14000 standard; and meets the ANSI-RAB training requirement for EMS Provisional Auditor, Auditor, and Lead Auditor. During the course, students conduct five audits, each featuring a different phase of an actual business/industry. The training includes instructor presentations, individual and group activities, open discussions on specific issues, and case study of EMS audits.

[260] International Register of Certificated Auditors. (May 1999). Criteria for Certification as a Quality Management Systems Auditor: 34 pgs.
http://www.irca.org/auditor_cert/pdf/102.pdf

This gives the criteria required to become a Quality Management Systems Auditor and gives the minimum qualifications and work experience required and the number of audits to be performed to become an Auditor and a Lead Auditor. Also gives the criteria for renewal of certification, and the requirements to be complied with to continue the auditor/lead auditor status, and gives guidance on Continuing Professional Development and the IRCA Code of Conduct. The Scheme has been developed in consultation with the U.K. Department of Trade and Industry, interest groups representing business and industry, employers of auditors, and various other interests.

[261] IQCS Certification. IRCA ISO 9000:2000 Transition Auditor Training.
http://www.qsu-iqcs.com/iqcs-q4-4.html

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This gives the learning objectives and course contents for the ISO 9001:2000 Transition Auditor Training. This course is designed to meet the International Register of Certificated Auditors (IRCA) Criteria, essential for practicing auditors and professional auditors who are required to upgrade their ISO and auditing knowledge to the latest ISO requirements.

[262] ISO (1998). The ISO Survey of ISO 9000 and ISO 14000 Certificates Eighth cycle: 19 pgs. http://www.iso.ch

The vast majority of ISO standards are highly specific to a particular product, material or process. However, both ISO 9000 and ISO 14000 are known as generic management system standards. Generic means that the same standards can be applied to any organization, large or small, whatever its product – independent of whether its "product" is actually a service – in any sector of activity, and whether it is a business enterprise, a public administration, or a government department. ISO 9000 is primarily concerned with quality management. The definition of "quality" in ISO 9000 refers to all those features of a product or a service which are required by the customer. Quality management means what the organization does to ensure that its products conform to the customer's requirements. ISO 14000 is primarily concerned with environmental management. This means what the organization does to eliminate harmful effects on the environment caused by its activities. ISO 9000 is not a product quality label or guarantee. ISO 14000 is not a "green" label for products. ISO does not assess or audit quality or environmental management systems. When an organization has a management system certified to an ISO 9000 or ISO 14000 standard, this means that an independent auditor has checked that the process influencing quality (ISO 9000), or the process influencing the impact of the organization's activities on the environment (ISO 14000), conforms to the relevant standard's requirements. ISO/TC 176 and ISO/TC 207 are the ISO technical committees responsible for developing and maintaining, respectively, the ISO 9000 and ISO 14000 families of standards.

[263] ISO. ISO in Brief: 10 pgs.

ISO is the International Organization for Standardization. It is made up of some 130 national standards institutes from countries large and small, industrialized and developing, in all regions of the world. ISO develops voluntary standards, over almost the entire range of technology, which add value to all types of business operations. They contribute to making the development, manufacturing and supply of products and services more efficient, safer and cleaner. They make trade between countries easier and fairer. ISO standards also serve to safeguard consumers, and users in general, of products and services – as well as to make their lives simpler. ISO develops only those standards which are required by the market. This work is carried out by experts on loan from the industrial, technical and business sectors which have asked for the standards, and which subsequently put them to use. These experts may be joined by others with relevant knowledge, such as representatives of government agencies and testing laboratories. Published under the designation of International Standards, ISO standards represent an international consensus on the state of the art in the technology concerned.

[264] Joint Technical Committee ISO/IEC 12207. ISO/IEC 12207 International Standard: Information Technology - Software Life Cycle Processes: 55 pgs.

This international standard establishes a common framework life cycle processes, with well-defined terminology, that can be referenced by the software industry. It contains processes,

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activities, and tasks that are to be applied during the acquisition of a system that contains software, a stand-alone software product, and software service, and during the supply, development, operation, and maintenance of a software product. This also provides a process that can be employed for defining, controlling, and improving life cycle processes. This international standard is intended for use in a two-party situation and may be equally applied where the two parties are from the same organization. This international standard is not intended for the off-the-shelf software products unless incorporated into a deliverable product.

[265] Kanholm, J. Ultra New and Improved ISO 9000: 2000 Y2K-Ready! 8 pgs.

With the ISO 9000: 2000 draft review process moving into its last phase, there has been a sudden increase of interest in the scope and interpretation of the new requirements. Registrars, auditors, consultants and course providers are all under pressure to develop their positions on specific, technical issues. Companies using ISO 9000 quality systems are also growing impatient as they wait to find out what they'll need to do to upgrade their systems. The most visible changes are in the structure of the ISO 9000 family of standards and in the sectional organization of the ISO 9001 standard. New requirements are predominantly in the areas of customer-related processes and continual improvement. There are also miscellaneous new requirements pertaining to process control, measuring and monitoring devices, training and awareness, internal communication, work environment, and legal and regulatory requirements. Structure The ISO 9000 series now consists of three standards: ISO 9000:2000 Quality Management Systems -- Fundamentals and Vocabulary; ISO 9001:2000 Quality Management Systems -- Requirements; ISO 9004:2000 Quality Management Systems -- Guidance for Performance Improvement.

[266] McKay, C. (1988). Standards for the Sake of Standards - A Recipe for Failure. Conference Proceedings on TRI-Ada '88, Charleston, SC.

Slide Presentation covering Standards, Software Engineering, Scaling Direction Problem, Four Key Points in the Progress From Advancements in Theoretical Foundations to Technologies to Utilization, Contrasting Approaches, Ada, POSIX, IRDS, SQL DDL, and Objects.

[267] Pillar Management Associates. ISO 9000 Lead Auditor Training.
http://www.uscs.edu/rampeycenter/iso9lead.html

This provides the overview of the course, course highlights, outcomes, course duration, and the targeted participants for the ISO 9001:1994 Lead Auditor Training under ANSI-RAB accreditation. This course is comprehensive training in lead auditor techniques, methodology, practices and skills.

[268] QMI Scotland Limited. Auditor/Lead Auditor Training.
http://www.qmi-scotland.co.uk/qmi/web/course/auditor-lead-auditor-training/

This covers the aim, duration, and course contents for the Auditor/Lead Auditor course for ISO 9001:1994 under ANSI-RAB Accreditation. This course is intended for practicing and potential auditors of suppliers, and subcontractors quality management systems. This course is approved and registered by the Governing Board of the National Registration Scheme for Assessors of Quality Systems. Successful completion of this course fulfills the training requirements for registration as an internal auditor under that scheme.

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[269] Quality Resource Center. ISO 9000 Auditor Training and Auditing Servicers.
http://www.qrccentral.com/audit.htm

This site gives information on the course contents covered by Quality Resource Center for ISO 9000 Internal Auditor training, Lead Auditor training, auditor training to the ISO 9000:1994 and ISO 9001:2000 standards. The contents of the Lead Auditor course includes a detailed review of the requirements of the ISO 9000 standards and explains how to set up and manage an ISO 9000 audit program. The course also defines the reporting forms and materials that should be created to provide a structure for the audit program.

[270] Rada, R. (April 1999). Sharing Standards: IT Skills Standards. *Communications of the ACM 42*, pgs. 21-26.
http://www.acm.org/pubs/citations/journals/cacm/1999-42-4/p21-rada/

Hundreds of thousands of information technology jobs go unfilled due to lack of adequately skilled people to fill them. The article grapples to seek answer to the questions like: What are these skills and how can someone demonstrate mastery of them? What about standardization of skills? Who develops skill standards and what should they be? And who determines whether the skill has been achieved? In IT the certification of individuals has not reached the level of sophistication and detail as required in other industries because IT education changes too quickly to be effectively standardized and educators do not adequately appreciate the importance of IT education. While IT changes very quickly, the standards for the skill or knowledge of an individual can be oriented to slower changing principles so the standard retains value over time.

[271] SPICE Team (1998). SPICE Phase 1 Trials Report Version 1.00: 154 pgs.
http://www-sqi.cit.gu.edu.au/spice/
http://www.iese.fhg.de/SPICE

This report details the findings of the first phase of trials, conducted as part of the SPICE project. The project was initiated by the International Standards group for Software Engineering, ISO/IEC JTC1/SC7, to develop a standard for software process assessment. The project is undertaking a set of trials to validate the standard against the goals and requirements defined at the start of the SPICE project and to verify the consistency and usability of its component parts. The project aims to test the proposed standard across a representative sample of organizations, for differing scenarios of use, in order to obtain rapid feedback and allow refinement prior to publication as a full international standard. The trials should determine whether the proposed standard satisfies the needs of its prospective users. Such an exercise is unprecedented in the software engineering standards community and provides a unique opportunity for empirical validation. An international trials team was established to plan and organize the trials and analyze the results. Trials are being structured into phases, each with their own objectives and scope. For each phase, the quantified and verifiable hypotheses to be tested have to be defined, as do the method, techniques and scenarios to be used. An appropriate organization and infrastructure (including procedures and data collection mechanisms) needs to be established to support each phase, from selection and conduct of trials through to analysis of trials data and reporting of results.

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[272] Victoria Group. (2000). Auditor/Lead Auditor Training for ISO 9000 With Guidance on 9000:2000.
http://www.qualitycoach.net/vla.htm

This provides the description of the course, course duration for the ISO 9001:1994 Auditor/Lead Auditor Training, with guidance on the 2000 revision. This course is certificated by the IRCA Registration Governing Board and is an IATCA approved training program that satisfies part of the formal training requirements for individuals seeking registration under the Auditor Registration Schemes and the IATCA Certification Process operated by signatories of the 1998 MLA. These include IRCA (U.K.) and RAB (U.S.).

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STRATEGIC ALLIANCES

[273] Casciaro, T. (1999). The Formation of Strategic Alliance Networks. Pittsburgh, PA, Carnegie Mellon University: 135.

This study asks the question of how a firm constructs its network of alliances to manage strategic interpendence. Building on resource dependence and social network theory, the author developed a novel theoretical framework that addresses the limitations of previous studies by simultaneously tackling the questions of network configuration, partner choice, and network evolution in the context of both intra- and inter-industry alliances among multi-industry firms. The author proposes a view of alliances as durable but reversible inter-firm relationships that achieve the goal of uncertainty reduction in resource acquisition in ways that are precluded by other form of inter-organizational ties, such as mergers and acquisitions. The co-existence of durability and reversibility drives the configuration and evolution of alliance networks.

[274] Ertel, D. (1999). "Turning Negotiation into a Corporate Capability." *Harvard Business Review*: 3-12.
http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?99304

Every company today exists in a complex web of relationships formed, one at a time, through negotiation. Purchasing and outsourcing contracts are negotiated with vendors. Marketing arrangements are negotiated with distributors. Product development agreements are negotiated with joint-venture partners. Taken together, the thousands of negotiations a typical company engages in have an enormous effect on both its strategy and its bottom line. But few companies think systematically about their negotiating activities as a whole. Instead they take a situational view, perceiving each negotiation to be a separate event with its own goals, tactics, and measures of success. Coordinating them all seems an overwhelming and impracticable job. In reality, the author argues, it is neither. A number of companies are successfully building coordinated negotiation capabilities by applying four broad changes in practice and perspective. First, they've established a companywide negotiation infrastructure to apply the knowledge gained from forging past agreements to improve future ones. Second, they've broadened the measures they use to evaluate negotiators' performance beyond matters of cost and price. Third, they draw a clear distinction between the elements of an individual deal and the nature of the ongoing relationship between the parties. Fourth, they make their negotiators feel comfortable walking away from a deal when it's not in the company's best interests. These changes aren't radical steps. But taken together, they will let companies establish closer, more creative relationships with suppliers, customers, and other partners.

[275] Gulati, R. (1998). "Alliances and Networks." *Strategic Management Journal*, John Wiley & Sons, Ltd. 19: 293-317.

This paper introduces a social network perspective to the study of strategic alliances. It extends prior research, which has primarily considered alliances as dyadic exchanges and paid less attention to the fact that key precursors, processes, and outcomes associated with alliances can be defined and shaped in important ways by the social networks within which most firms are embedded. It identifies five key issues for the study of alliances: (1) the formation of alliances, (2) the choice of governance structure, (3) the dynamic evolution of alliances, (4) the performance of alliances, and (5) the performance consequences for firms entering alliances. For

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each of these issues, this paper outlines some of the current research and debates at the firm and dyad level and then discusses some of the new and important insights that result from introducing a network perspective. It highlights current network research on alliances and suggests an agenda for future research.

[276] Gulati, R., Nohria, N., and Zaheer, A. (2000). "Strategic Networks." *Strategic Management Journal*, John Wiley & Sons, Ltd. 21: 203-215.

This paper introduces the important role of networks of interfirm ties in examining fundamental issues in strategy research. Prior research has primarily viewed firms as autonomous entities striving for competitive advantage from either external industry sources or from internal resources and capabilities. However, the networks of relationships in which firms are embedded profounding influence their conduct and performance. The authors identify five key areas of strategy research in which there is potential for incorporating strategic networks: (1) industry structure, (2) positioning within an industry, (3) inimitable firm resources and capabilities, (4) contracting and coordination costs, and (5) dynamic network constraints and benefits. For each of these issues, the paper outlines some important insights that result from considering the role of strategic networks.

[277] Landay, W. (1996). Extended Enterprises Spell Success, The Electronic College of Process Innovation.
http://www.reengineering.com/articles/may96/extenter.htm
http://www.c3i.osd.mil/bpr/bprcd/5758.htm

They're called trendy names like "virtual companies," "extended enterprises" or "flexible manufacturing networks." But behind the jargon lies an age-old idea: the power of working together. Many firms that previously coexisted independently along supply chains or even competed with each other directly are now forming collaborative alliances of all kinds. As it turns out, this newest trend in American manufacturing is not particularly new - or American. It was in northern Italy that the U.S. found a model for collaboration among small manufacturers. There, in the hilly and relatively rural regions of Lombardia and Emilia-Romagna, small firms began banding together in earnest in the 1970s. And the flexible manufacturing networks they formed drove an economic boom in the area. Emilia-Romagna climbed from 17th in per capita income in 1970 to second in 1985. The Italian manufacturing networks unite swarms of tiny firms. In the Emilia-Romagna region, hundreds of networks support some 25,000 small shops in a variety of ways. They provide service centers where market research and technology is made available. And, equally important, the networks provide a framework for executives to meet and gain each other's trust, easing the way for firms to pair off to take advantage of market opportunities. While the success of the Italian manufacturing networks has attracted intense scrutiny since at least the mid-1980s, U.S. manufacturers have been slow to adopt inter-firm strategies. "We can sit down and say inter-firm collaboration makes a lot of sense. The question is: Why don't more firms do it?" says Brian Bosworth of Chapel Hill, N.C.-based USNet, a consortium of government agencies that promotes networking.

[278] Ridout, B. (1997). The Virtual IT Organization, *Information Week*, CMP Media Inc. 1997.
http://www.techweb.com/se/directlink.cgi?IWK19970922S0044

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When DuPont & Co. announced last December that it intended to form an IT alliance with Computer Sciences Corp. and Andersen Consulting, many of their customers-and even some competitors-asked what DuPont, known for having a strong internal IT operation, expected to gain from such an outsourcing arrangement. The answer is simple: variability and flexibility in the IT services and solutions available to all the businesses within the organization. In fact, this type of alliance may be suitable for other large, global, and diverse organizations that face a changing business model. Wholly owned businesses are shrinking, and more joint ventures, acquisitions, and divestitures are taking place, creating a need for more independence within various business units. Business lines have a growing need for greater flexibility and speed of operations. This translates to change with respect to the entire realm of IT within the organization. In some cases, solutions can come from the outside.

[279] Ring, P. S., and Van De Ven, A.H. (1994). "Developmental Processes of Cooperative Interorganizational Relationships." *Academy of Management Review* 19(1): 90-118.

This article examines the developmental process of cooperative interorganizational relationships (IORs) that entail transaction-specific investments in deals that cannot be fully specified or controlled by the parties in advance of their execution. A process framework is introduced that focuses on formal, legal, and informal social-psychological processes by which organizational parties jointly negotiate, commit to, and execute their relationship in ways that achieve efficient and equitable outcomes and internal solutions to conflicts when they arise. The framework is elaborated with a set of propositions that explain how and why cooperative IORs emerge, evolve, and dissolve. The propositions have academic implications for enriching interorganizational relationships, transaction cost economics, agency theories, and practical implications for managing the relationship journey.

[280] Willcocks, L. P., and Lacity, M.C. (1998). Strategic Sourcing of Information Systems, Perspectives and Practices. *John Wiley & Sons*. 393.

Increasingly large multinationals and public sector agencies, as well as small and medium organizations, have perceived value in transferring some or most of their IT assets, leases and staff to third party vendors. This trend has been maintained by high-profile "mega-deals" based ostensibly on the logic of core competence thinking and trends towards "alliance capitalism". However, many members of the IT community have signaled the dangers inherent in relinquishing management control of a "strategic asset". In some cases these warnings have proved valid, with several "strategic partnerships" experiencing severe problems. Conversely, some of the companies adamantly refusing to countenance outsourcing have struggled to demonstrate IT value. The key question therefore is not should IT be outsourced, but where and how can business leverage be achieved through utilizing the rapidly developing market for IT services. This book provides a forum of current thinking by prominent scholars and practitioners from around the globe. Edited and with a lengthy introduction, the book's coverage includes: Selective Outsourcing, Total Outsourcing, Total Insourcing, IT department as a trading agency, Offshore Development. Theoretical perspectives allow critical variables to be extracted in order to explain successful or unsuccessful decisions, while decision frameworks and case studies provide guidelines on which sourcing options to select, and how to manage outsourcing arrangements.

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OTHER

[281] Allen, J., Ford, G., Fraser, B., Kochman, J., Konda, S., Simmel, D., and Cunningham, L. (January 1998). Security for Information Technology Service Contracts. Pittsburgh, PA, Software Engineering Institute.

An increasing number of organizations are contracting with outside companies for installation and maintenance of their information technology. All too often, these organizations experience increased difficulty in providing appropriate oversight of the services and software for which they have contracted. For example, contractor access to organization's systems is often neither well controlled nor secure, placing information systems and data at risk. The practice recommended are designed to assist an organization in managing the contractor, managing the contract and deterring common, known security problems when IT services and software are externally contracted.

[282] Crosby, P. B. (1980). Quality is Free, Penguin Books, Inc.: New York, NY.

The book is about the art of making quality certain. It provides a way of measuring the exact status of present quality programs in an organization and describes what positive steps should be taken to evaluate and improve that program. The author has explained in detail the evaluation system through the Quality Management Maturity grid. The book is structured to lead an organization directly through all the actions required for a proper Quality Management program. Each stage of maturity is covered. Through various case histories, the author has described the various practical situations to explain how to react in such real life situations.

[283] Cullen, J., and Hollingum, J. (1987). Implementing Total Quality, IFS Publications Ltd., Springer-Verlag, U.K.

This book presents a clear understanding of the management of quality improvement as well as a detailed and structured approach to implementing a program of Total Quality. It provides a comprehensive and practical introduction for senior managers wishing to implement Total Quality in their organization. At the end of each chapter, steps have been suggested towards implementing Total Quality in an Organization. The book explains how the effectiveness of Total Quality depends on adopting a thoroughgoing approach that will affect all aspects of the company's operation. The types of changes needed in taking this approach are described in detail, in sections covering the training and motivation of personnel for quality; the way in which a Quality Management System should be structured; and the metrology and statistics necessary to implement Total Quality successfully. The book concludes with a clearly illustrated step-by-step implementation program that details the process of actually putting Total Quality into practice. The author has also suggested ways to revitalize a company and reduce operating costs. Moreover, he also introduced some of the methods of the Japanese expert on experimental design, Genichi Taguchi. The book aims to improve both the quality of products and the efficiency of operations in an organization.

[284] Duncan, W.R. (1996). A Guide to Project Management Body of Knowledge. *PMI Standards Committee,* Project Management Institute.

The *Project Management Body of Knowledge (PMBOK)* is an inclusive term that describes the sum of knowledge within the profession of project management. As with other

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professions such as law, medicine, and accounting, the body of knowledge rests with the practitioners and academics who apply and advance it. The full PMBOK includes knowledge of proven, traditional practices which are widely applied as well as knowledge of innovative and advanced practices which have seen more limited use.

[285] Handy, C. (1995). "Trust and the Virtual Organization." *Harvard Business Review*: 7 pgs. http://www.hbsp.harvard.edu/hbsp/prod_detail.asp?95304

The technological possibilities of the virtual organization are seductive. But its managerial and personal implications require rethinking old notions of control. As it becomes possible for more work to be done outside the traditional office, trust will become more important to organizations. Handy proposes seven rules of trust. Trust is not blind: It needs fairly small groupings in which people can know each other well. Trust needs boundaries: Define a goal, then leave the worker to get on with it. Trust demands learning and openness to change. Trust is tough: When it turns out to be misplaced, people have to go. Trust needs bonding: The goals of small units must gel with the larger group's. Trust needs touch: Workers must sometimes meet in person. Trust requires leaders. Virtuality's Three I's (information, ideas, intelligence) can improve quality of life. The question Handy asks is, Will they be for everyone? He believes the potential exists for the Three I's to benefit not just organizations but also those with whom they do business and society as a whole.

[286] Hayes, B. E. (1998). Measuring Customer Satisfaction, Second Edition, American Society of Quality Control: Milwaukee, WI.

This book presents various scientific principles in relation to the development of customer satisfaction questionnaires and issues that are applicable to develop any attitude measure. Though the book does not cover the entire content of this area, it presents information related to the development of a customer satisfaction questionnaire. It also presents important statistical concepts to aid readers who lack a statistical background. This book is divided into 7 chapters. Chapter 1 introduces the concept of quality and emphasizes the importance of assessing customer satisfaction. Chapter 2 covers two methods of determining important service or product characteristics as perceived by customers. Chapter 3 covers measurement issues related to customer satisfaction questionnaires, discusses reliability and validity, and contains formulae to estimate reliability. Chapter 4 presents guidelines for developing questionnaires, including the type of questions to be included, characteristics of good questions, response formats and information to be included in the introduction. Chapter 5 covers different sampling methods and also covers research that shows how to increase response rates to surveys. Chapter 6 presents 5 examples of customer satisfaction questionnaires pertaining to the Manufacturing Industry, Service Industry, and Software Industry. It also discusses methods of presenting the data and suggests specific uses, including identifying aspects of service that are important to a customer. Chapter 7 includes various real life examples of customer satisfaction questionnaires to show the application of sampling error, confidence intervals, and control charts.

[287] Henry, J., and Henry, S. (1993). Quantitative Assessment of Software Maintenance and Requirements Volatility. ACM Annual Computer Science Conference: Proceedings of the 1993 ACM Conference on 1993 ACM Computer Science, Indianapolis, IN. http://www.acm.org/pubs/citations/proceedings/csc/170791/p346-henry/

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This paper describes analysis techniques used to quantitatively assess the software maintenance process of a large military contractor, and the results obtained. The analysis techniques make use of basic data collected throughout the maintenance process. The data collected are extensive and allow a set of functional enhancements to be traced to process activities and product impact. Simple nonparametric statistical techniques are then applied to test relationships between data items. The results provide valuable information for predicting process and product characteristics, and assessing the maintenance process.

[288] Hirschheim, R., and Lacity, M. (2000). "The Myths and Realities of Information Technology Insourcing." Communications of the ACM 43: 99-107.
http://www.acm.org/pubs/citations/journals/cacm/2000-43-2/p99-hirschheim/

IT managers commiserate over the challenges of convincing senior executives that, contrary to popular belief, outsourcing isn't always a money-saving option. In general, the current research indicates selective sourcing is still the norm but that outsourcing options are becoming more complex. Insourcing is the practice of evaluating the outsourcing option, but confirming the continued use of internal IT resources to achieve the same objectives of outsourcing. The authors explain what they found in their research through four alternative approaches in terms of archetypes, discussing each one through an individual case study: (1) Senior executives enable internal IT managers to cut costs, (2) IT managers terminate failing outsourcing contracts, (3) IT managers defend insourcing, and (4) Senior executives confirm the value of IT.

[289] Jarvenpaa, S. L., Knoll, K., and Leidner, D.E. (1998). "Is Anybody Out There? Antecedents of Trust in Global Virtual Teams." *Journal of Management Information Systems* 14(No. 4): 29-64.

A global virtual team is an example of a boundary less network organization form where a temporary team is assembled on an as-needed basis for the duration of a task and staffed by members from different countries. In such teams, coordination is accomplished via trust and shared communication systems. The focus of the reported study was to explore the antecedents of trust in a global virtual-team setting. Seventy-five teams, consisting of four to six members residing in different countries, interacted and worked together for eight weeks. The two-week trust-building exercises did have a significant effect on the team members' perceptions of the other members' ability, integrity, and benevolence. In the early phases of teamwork, team trust was predicted strongest by perceptions of other team members' integrity, and weakest by perceptions of their benevolence. The effect of other members' perceived ability on trust decreased over time. The members' own propensity to trust had a significant, though unchanging, effect on trust. A qualitative analysis of six teams' electronic mail messages explored strategies that were used by the three highest trust teams, but were used infrequently or not at all by the three lowest trust teams. The strategies suggest the presence of "swift" trust. The paper advances a research model for explaining trust in global virtual teams.

[290] Kogut, B., and Turcanu, A. (1999). Global Software Development and the Emergence of E-Innovation. Pittsburgh, PA, Carnegie Bosch Institute for Applied Studies in International Management: 15.
http://cbi.gsia.cmu.edu/newweb/1999SFconference/Kogut/Kogut.html

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The authors examine the location of software development activities of firms from several countries. They propose that there are two models for global software development, one emphasizing cost and speed, the other, the effort to improve innovativeness. They call the latter "E-innovation." The data consists of case studies of American, Indian, and Irish companies. They find that the location decisions of American firms are motivated by strategies of cost containment and capability achievement. The Indian and Irish firms are moving closer to the customers in order to improve their innovativeness and to achieve legitimacy in the most demanding and creative high-tech environments. The authors find that there are important limits to the Model 1 spatial dispersion of software development activities due to the needs for tight coordination, the richness of face-to-face communication, and a shared context among developers. They propose that Model 2 of web-based development will grow and will permit the globalization of innovation.

[291] Lupienski, J. A. M. Six Sigma.
http://www-ee.eng.buffalo.edu/faculty/paololiu/408/quality/sld001.htm

This Web site provides information on the Six Sigma journey of Motorola. It begins with an overview of Motorola and its Quality journey towards process improvement. It also gives insight on how Motorola has deployed the principles of Six Sigma to drastically reduce its defects, and thus costs, and improves productivity.

[292] Rogers, R.E. (1996). Implementation of Total Quality Management: A Comprehensive Training Program. Binghamton, New York, International Business Press.

This book is designed to train the organization's workforce in Total Quality Management (TQM) and it provides a complete presentation from an introduction to the principles of quality management to a case application of implementing the concept. The introductory chapter presents a current overview of the status of TQM in the United States. A discussion of Deming's 14-Point TQM Philosophy has been included as Chapter Two. The reference section lists many books on TQM principles.

[293] Sieber, P., and Griese, J. (Eds.) (1999). Organizational Virtualness and Electronic Commerce, Institute of Information Systems, Department of Information Management, University of Bern. 1999.
http://www.virtual-organization.net/files/articles/vonet-99.pdf

Electronic Commerce is defined as "doing business electronically". However, this means more than simply selling goods using the Internet as a technical platform. It is about marketing, organization of various suppliers, delivery services and other third parties, and also the redesigning of content to reflect innovations in products and services. Venkatraman and Henderson (1998) interpret the term "Virtualness" as the ability of the organization to manage the interdependence between these aspects. "Doing business" from their perspective relates to the management of: 1) Customer Interaction, 2) Asset Configuration, and 3) Knowledge Management. Examination of the literature about Electronic Commerce reveals that, in addition to the obvious discussion about "Customer Interaction", more and more articles are tackling the dimension of Asset Configuration and Knowledge Management (e.g., see Singer and Hagel, 1999). Successful companies such as Amazon, com, Dell Computers and many more interact with customers using the Internet, and they also interact with specialized players such as delivery

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services, credit card companies, telecommunication infrastructure providers, software companies, etc., in order to build interorganizational information systems based on the Internet technology. The second workshop on organizational virtualness focuses on these aspects of "doing business electronically". The research fields that contribute to the understanding of organizational virtualness include the following: 1) Networked Organization, 2) Electronic Commerce, 3) Virtual Corporation, and 4) Virtual Team.

[294] Taylor, W. C. (1995). At Verifone It's a Dog's Life (And They Love It!), *FC Issue - Premiere*, pg 115. 1995.
http://www.fastcompany.com/online/01/vfone.html

Hatim Tyabji is sitting at a small conference table in his office in Redwood City, California, about 25 miles south of San Francisco. This, it should be noted, is nothing short of miraculous. As president and CEO of VeriFone Inc. http://www.verifone.com, Tyabji is a perpetual-motion executive. He travels up to 400,000 air miles per year -- visiting customers, cajoling employees, sizing up markets. When he's not in the air, he's working on his laptop. That's because he has banned all secretaries and paper correspondence at VeriFone. Tyabji receives more than 100 e-mails per day and conducts all business -- from granting raises to approving budgets -- through the company's electronic infrastructure.

[295] Warkentin, M. E., Sayeed, L., Hightower, R. (1997). "Virtual Teams versus Face-to-Face Teams: An Exploratory Study of a Web-based Conference System." *Decision Sciences* 28(No. 4): 975-996.

Many organizations are forming "virtual teams" of geographically distributed knowledge workers to collaborate on a variety of workplace tasks. But how effective are these virtual teams compared to traditional face-to-face groups? Do they create similar teamwork and is information exchanged as effectively? An exploratory study of a World Wide Web-based asynchronous computer conference system known as Meeting Web is presented and discussed. It was found that teams using this computer-mediated communication system (CMCS) could not outperform traditional (face-to-face) teams under otherwise comparable circumstances. Further, relational links among team members were found to be a significant contributor to the effectiveness of information exchange. Though virtual and face-to-face teams exhibit similar levels of communication effectiveness, face-to-face members report higher levels of satisfaction. Therefore, the paper presents steps that can be taken to improve the interaction experience of virtual teams. Finally, guidelines for creating and managing virtual teams are suggested, based on the findings of this research and other authoritative sources.

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