

IPENZ ENGINEERING UPDATE October 2007



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Management/Leadership/Strategic Planning/Recruitment/Training and Development

√IPENZ 08/01 Cognitive fitness.

Gilkey, R and Kilts, C. Harvard Business Review, Volume 85 Issue 11 (November 2007) Pages 53-66. Recent neuroscientific research shows that the health of your brain isn't, as experts once thought, just the product of childhood experiences and genetics; it reflects your adult choices and experiences as well. Professors Gilkey and Kilts of Emory University's medical and business schools explain how you can strengthen your brain's anatomy, neural networks, and cognitive abilities, and prevent functions such as memory from deteriorating as you age. The brain's alertness is the result of what the authors call cognitive fitness – a state of optimized ability to reason, remember, learn, plan, and adapt. Certain attitudes, lifestyle choices, and exercises enhance cognitive fitness.

√IPENZ 08/02 The entertaining leader, the intoxicated follower.

Lipman-Blumen, J. Leader to Leader, Volume 41 (Summer 2006) Pages 66-70. The use of entertainment as a leadership skill can evoke desired responses from followers.

√IPENZ 08/03 Improving productivity through coaching and mentoring.

Thomas, N and Saslow, S. Chief Learning Officer, Volume 6 Issue 5 (May 2007) Pages 22-56. Both coaching and mentoring have a key role in talent development. The differences between coaching and mentoring are discussed.

√IPENZ 08/04 8 ways to build collaborative teams.

Gratton, L and Erickson, T. Harvard Business Review, Volume. 85 Issue 11 (November 2007) Pages 100-109.

Executing complex initiatives like acquisitions or an IT overhaul requires a breadth of knowledge that can be provided only by teams that are large, diverse, virtual, and composed of highly educated specialists. The irony is, those same characteristics have an alarming tendency to decrease collaboration on a team. The authors studied 55 large teams and identified those with strong collaboration. By examining the team dynamics they isolated 8 critical success factors.

√IPENZ 08/05 Happiness, health, or relationships? Managerial practices and employee well-being tradeoffs.

Grant, A., Marlys K. and Price, R. Academy of Management Perspectives, Volume 21 Issue 3 (August 2007) Pages 51-63.

√IPENZ 08/06 Marketing of professional project services : an exploratory study of the role of operant resources in the context of architectural firms.

McDonald, R and Madhavaram, S. Marketing Management Journal, Volume 17 Issue 1 (Spring 2007) Pages 95-111,

Explores marketing of professional services in an architectural firm. In-depth interviews of principals and marketing directors and staff, were conducted and results analysed. The authors then present a suggest framework for successful project services marketing and implications for practitioners.

√**IPENZ 08/07 Are your engineers talking to one another when they should?**

Sosa, M., Eppinger, S and Rowles, C. Harvard Business Review, Volume 85 Issue 11 (November 2007) Pages 133-142,

Communication may not be on managers' minds at companies that design complex, highly engineered products, but it should be. When mistakes take place, it's often because product-component teams fail to talk. The consequences can be huge: Ford and Bridgestone Firestone lost billions by not coordinating the design of the Explorer with the design of its tires. The major delays and cost overruns involved in the development of Airbus's A380 "superjumbo" - were a result of unforeseen design incompatibilities. To help managers mitigate such problems, the authors present a new application of the design structure matrix, a project management tool that maps the flow of information and its impact on product development.

√**IPENZ 08/ 08 Civil engineering career management – the unwritten rules.**

Hipkiss, A. Civil Engineering (ICE) Volume 159 Issue 3 (August 2006) Pages 132-137.

√**IPENZ 08/ 09 Managing belief To enable better choice.**

Smith, L. Journal of Innovative Management, Volume 12 Issue 4 (Summer 2007) Pages 44-57.

√**IPENZ 08/10 Leveraging personality for business success.**

Fleetham, C. and Griesmer, S. Leadership & Management in Engineering, Volume 6 Issue 4 (October 2006) Pages 160-163.

Discusses a case study of a civil engineering firm, who engaged the services of a management consultant to review perceptions of the firm's personality and leadership from a client perspective. The survey identified key areas of strength and weakness, which helped the firm to redefine its position as an innovative leader and strategic partner to its clients.

√**IPENZ 08/11 Turbocharged organizational change through high-octane management training.**

Warren, C and Clements, N. Leadership & Management in Engineering, Volume 6 Issue 3, (July 2006) Pages 117-122.

The challenge given was to transform a public service organization in the transportation area, to an entrepreneurial top performer. The article describes the first years of the training process and lessons learned.

√**IPENZ 08/12 10 Things That Can Make Your Workers Sleepy.**

Busick, J. Safety Compliance Letter, Issue 2483 (2007) Pages p7-11.

√**IPENZ 08/13 Developing productive relationships in civil engineering.**

Platts, J and Tomasevic. V. Civil Engineering (ICE) Volume 159 Issue 3 (August 2006) Pages 132-137.

Risk Management/Project Management/Cost Management/Financing

√IPENZ 08/14 Construction audit : an essential project controls function.
Cost Engineering, Volume 49 Issue 10 (October 2007) Pages 20-25.

√IPENZ 08/15 **Project management assets and their relationship with the project management capability of the firm.**

Jugdev, K., Mathur, G and Fung, T. International Journal of Project Management, Volume 25, Issue 6 (August 2007) Pages 560-568.

According to the Resource Based View of the firm, strategic assets contribute to a firm's competitive advantage. Strategic assets are characterized as Valuable, Rare, Inimitable, and they involve Organizational Support. These four characteristics have been theorized to result in competitive parity, temporary competitive advantage, or a sustainable competitive advantage for a company. This paper examines the relationships between key project management assets and these project management process characteristics using data from a survey of North American Project Management Institute® members. Findings from an analysis of the data suggest that intangible project management assets are a source of temporary competitive advantage while tangible project management assets are not. These findings highlight the importance of identifying and managing intangible project management assets for practitioners and scholars of project management.

√IPENZ 08/16 **Cost to capacity factor development for facility projects.**

Ellsworth, R. Cost Engineering, Volume 49 Issue 9 (September 2007) Pages 26-29.

Cost to capacity analysis was originally used in the chemical industry for equipment and process plants. This method has expanded for use in other industries.

√IPENZ 08/17 **World- class project performance with value improving practices.**

Lavingia, N. AACE International Transactions (2007) Pages PM03.1- PM03.3.

Shares practical industry experience from global construction projects that have successfully implemented VIPs (value improvement processes), to improve business results.

√IPENZ 08/18 **Engineering and contracting projects: A value at risk based approach to portfolio balancing.**

Caron, F., Fumagalli, M and Rigamonti, A. International Journal of Project Management, Volume 25 Issue 6 (2007) Pages 569-578.

The approach proposed focuses on the bid/no bid decision linked to the portfolio management issue for an Engineering and Contracting company. A first step is the transposition of the financial concept of Value at Risk to the world of Engineering and Contracting projects. The distribution of the project Net Present Value over the project lifecycle has been considered, in a similar way as the distribution of return for a portfolio of financial assets over a specified time horizon, in order to define a synthetic measure of risk for an Engineering and Contracting project. The second step is the use of measures of risk based on the Value at Risk concept to support bid no bid decision-making processes in order to obtain a better balancing of the overall portfolio of projects for a company operating in the Engineering and Contracting industry. The proposed framework has been tested as a decision support tool on a power plant project

√IPENZ 08/19 **Why traditional risk management fails in the oil and gas sector : empirical front line evidence and effective solutions.**

Schroeder, B and Jackson, J. AACE Transactions (2007) Pages RISK 01-RISK 06.

√IPENZ 08/20 **Six sigma management activities and their influence on corporate competitiveness.**

Lee, Kun-Chang and Choi, Bong. Total Quality Management & Business Excellence, Volume 17 Issue 7 (September 2006) Pages 893-911.

Technical Aspects of Engineering –Abstracts for most available upon request.

IPENZ 08/21 **A stranded-crowd model (SCM) for performance-based design of stadium egress.**

Zhang, Q et al. Building and Environment, Volume 42 Issue 7 (2007) Pages 2630-2636.

Stadium disasters statistic analysis indicated that egress congestion is the major cause of crowd stampede trampling and crushing incidents. In this paper a stranded-crowd model (SCM) for stadium egress is put forward with previous works.

IPENZ 08 /22 **Wind response of large roofs of stadiums and arena.**

Biagini, P., Borri, C.,and Facchini, L. Journal of Wind Engineering and Industrial Aerodynamics, Volume 95 Issue 9-11 (2007) Pages 871-887.

IPENZ 08 /23 **Evaluation of thermal comfort in indoor stadiums of the Athens 2004 Olympic Games with CFD models: Case of Nikea indoor stadium.**

Stamou, A., Katsiris, I and Schaelin, A. Journal of Architectural Engineering, Volume 13 Issue 3 (2007) Pages 130-135.

√IPENZ 08 /24 **Constructing a convertible (stadium retractable roof).**

Building Design and Construction, Volume 47 Issue 14 (December 2006) Pages 38-40.

√IPENZ 08/25 **How Athens' Olympic stadium was finally pulled together.**

Civil Engineering (ICE), Volume 159 Issue 3 (August 2006) Pages 114-119.

√IPENZ 08/26 **Critical milestones in development of post-tensioned buildings: a look back at the last fifty years of progress.**

Aalami, B. Concrete International (October 2007) Pages 52-56.

√IPENZ 08/27 **Flat plates in seismic areas : comparison of shear reinforcement systems.**

Broms, C. ACI Structural Journal, Volume 104 Issue 6 (November/December 2007)

Pages 712-721.

√IPENZ 08/28 **Seismic retrofitting of corroded reinforced concrete columns using carbon composites.**

Aquino, W and Hawkins, N. ACI Structural Journal, Volume 104 Issue 3 (May/June 2007) Pages 348-356.

√IPENZ 08/29 **Vibration control of ultra-sensitive facilities.**

Brownjohn, J and Pavic, A. Proceedings of the Institution of Civil Engineers : Structures and Buildings, Volume 159 Issue SB5 (October 2006) Pages 295-306.

√IPENZ 08/30 **Temporal scour development at bridge abutments with a collar.**

Kumcu, S., Gogus, M and Kokpinar, M. Canadian Journal of Civil Engineering, Volume 34 Issue 4 (April 2007) Pages 549-556.

√IPENZ 08/31 **Examples of new built footbridges in Poland.**

Biliszczuk, J et al. Proceedings of the Institution of Civil Engineers : Bridge engineering, Volume 160 Issue BE1 (March 2007) Pages 37-42.

√IPENZ 08/32 **Overview of vibrational structural health monitoring with representative case studies.**

Hsieh, K., Halling, M and Barr, P. Journal of Bridge Engineering, Volume 11 Issue 6, (November 2006) Pages 707-715.

√IPENZ 08/33 **Anaerobic digestion outlook for MSW streams.**

Kelleher, M. Biocycle, Volume 48 Issue 8 (August 2007) Pages 51-55.

Reviews developments in anaerobic digestion projects and systems and focuses on trends in European countries.

√IPENZ 08/34 **Perseverance leads to productivity during digester retrofit projects.**

Puhr, R. Pulp and Paper, Volume 81 Issue 4 (April 2007) Pages 32-36.

By working through a series of set backs during its retrofit project, Aracruz's Guaiba mill has transformed its 1970's era digester into one of the world's three most productive.

√IPENZ 08/35 **Performances of anaerobic waste activated sludge digesters after microwave pre-treatment.**

Eskicioglu, C., Droste, R and Kennedy, K. Water Environment Research, Volume 79 Issue 11 (October 2007) Pages 2265-2273.

√IPENZ 08/36 **Land applied biosolids restores disturbed rangelands.**

MacFarland, M et al. Biocycle, Volume 48 Issue 9 (September 2007) Pages 34-38.

To counter impacts of heavy grazing organic matter decomposition from biosolids releases nutrients—making them available for plants and soil micro-organisms

√IPENZ 08/37 **Bioaerosols from land-applied biosolids: issues and needs.**

Pillai, S. Water Environment Research, Volume 79 Issue 3 (2007) Pages 270-278.

√IPENZ 08/38 **Maximizing condensing boiler system efficiency : pressure independent control holds key to achieving high performance.**

Moe, E. Heating/Piping/Air Conditioning Engineering, Volume 79 Issue 9 (September 2007) Pages 64-73.

√IPENZ 08/39 **The development of a dynamic model to simulate boiler controls.**

Building Services Engineering Research and Technology, Volume 28 Issue 2 (May 2007) Pages 19-05-116.

A simulation model for the control of multiple boiler installations is outlined.

√IPENZ 08/40 **An introduction to refrigeration best practices.**

Wilcox, M. Journal of Energy Engineering, Volume 104 Issue 1 (2007) Pages 23-51.

√IPENZ 08/41 **Enhancing energy efficiency of refrigeration units.**

Papar, R., Zugibe, K and Heitler, J ASHRAE journal, Volume 49 Issue 5 (May 2007) Pages 62-72.

√IPENZ 08/42 **Choosing the right air filter and filter media.**

Matela, D. Heating/Piping/Air Conditioning Engineering: HPAC, Volume 79 Issue 9 (2007) Pages 45-53.

Proper air filtration can promote cleaner indoor air while reducing energy costs and helping earn LEED credits.

√IPENZ 08/43 **Fungi – an indoor air quality assessment parameter for air conditioned offices.**

Mui, K. et al. Building Services Engineering Research and Technology, Volume 28 Issue 3 (2007) Pages 265-274.

√IPENZ 08/44 **A nature conservation perspective of port-related dredging.**

Morris, R. Proceedings of the Institution of Civil Engineers: Maritime Engineering, Volume 160 Issue 1 (2007) Pages 19-23.

IPENZ 08/45 **Online fault diagnosis and prevention expert system for dredgers.**

Tang, J and Wang, Q. Expert Systems with Applications, Volume 34 Issue 1 (2008) Pages 511-521.

√IPENZ 08/46 **Financing port dredging costs : taxes versus user fees.**

Talley, W. Transportation Journal, Volume 46 Issue 3 (Summer 2007) Pages 53-58.

√IPENZ 08/47 **Evaluation of an infiltration best management practice utilizing pervious concrete.**
Kwiatkowski, M et al. Journal of the American Water Resources Association, Volume 43 Issue 5
(October 2007) Pages 1208-1222.

IPENZ 08/48 **The impact of injection on seismicity at The Geysers, California Geothermal Field.**
Majer, E and Peterson, J. International Journal of Rock Mechanics and Mining Sciences, Volume 44
Issue 8) (2007) Pages 1079-1090.

IPENZ 08/49 **Subsidence in the geothermal fields of the Taupo Volcanic Zone, New Zealand from 1996 to 2005 measured by InSAR.**
Hole, J et al. Journal of Volcanology and Geothermal Research, Volume 166 Issue 3-4 (2007) Pages
125-146.

IPENZ 08/50 **Environmental impacts of absorption-based CO2 capture unit for post-combustion treatment of flue gas from coal-fired power plant.**
Thitakamol, B., Veawab, A. and Aroonwilas, A. International Journal of Greenhouse Gas
Control, Volume 1 Issue 3 (2007) Pages 318-342.

IPENZ 08/51 **Performance-based fire safety design of reinforced concrete beams.**
Kodur, V and Dwaikat, M. Journal of Fire Protection Engineering, Volume 17 Issue 4 (2007) Pages
293-320.

IPENZ 08/52 **An Exploration of Household Response to Personal Travel Carbon-Reduction Targets.**
Tight, I. et a. International Journal of Sustainable Transportation. Volume 1 Issue 3 (May 2007)
Pages 143-159.

IPENZ 08/53 **Evaluation of trenchless technology methods for municipal infrastructure system.**
Jung, Y and Sinha, S. Journal of Infrastructure Systems, Volume 13 Issue 2 (2007) Pages 144-156.

√IPENZ 08/54 **Trenchless technology - A modern solution for clean-flowing cities.**
Downey, D. Civil Engineering (ICE), Volume 159 Special Issue 1 (May 2006) Pages 26-30.

√IPENZ 08/55 **Simplified Numerical Method to Evaluate the Mechanical Strength of Cast Iron Water Pipes.**
Seica, M and Jeffrey A. Journal of Infrastructure Systems, Volume 12 Issue 1 (2006) Pages 60-67.

IPENZ 08/56 **Chlorine decay in drinking-water transmission and distribution systems: Pipe service age effect.**
Al-Jasser, A. Water Research, Volume 41 Issue 2 (2007) Pages 387-396.

√IPENZ 08/57 **Analysis of road lighting quantity and quality in varying weather conditions.**
Ekrias, A., Eloholma, M and Halonen, L. Leukos, Volume 4 Issue 2 (October 2007) Pages 89-98.

IPENZ 08/58 **Joint road geometry estimation and vehicle tracking.**
Eidehall, A., Pohl, J., and Gustafsson, F. Control Engineering Practice, Volume 15 Issue 12 (2007)
Pages 1484-1494.

IPENZ 08/59 **Knowledge informed decision making in the building lifecycle: An application to the design of a water drainage system.**
Boddy, S. et al. Automation in Construction, Volume 16 Issue 5 (2007) Pages 596-606.

IPENZ 08/60 **On the social desirability of urban rail transit systems.**
Winston, C. and Maheshri, V. Journal of Urban Economics, Volume 62 Issue 2 (2007) Pages 362-382.

SPECIAL FOCUS ON.....SUSTAINABILITY

IPENZ 08/61 **Business networks and the uptake of sustainability practices : the case of New Zealand.**
Collins, E. Journal of Cleaner Production, Volume 15 (2007) Pages 729-740.

√IPENZ 08 /62 **Concrete summit on sustainable development: developing a strategy on sustainability.**
Bedard, C and Sordyl, D. Concrete International (July 2007) Pages 54-58.

IPENZ 08 /63 **Eco-labels : a sustainability performance in benchmarking?**
Proto, M. et al. Management of Environmental Quality, Volume 18 Issue 6 (2007) Pages 669-683.

√IPENZ 08/64 **Decision tools for sustainable drainage.**
Scholz, M. Proceedings of the Institution of Civil Engineers : Engineering Sustainability, Volume 159 Issue 3 (2006) Pages 117-125.

√IPENZ 08/65 **Achieving sustainable water infrastructure.**
Heare, S. American Water Works Association Journal, Volume 99 Issue 4 (April 2007) Pages 24-28.

IPENZ 08/66 **The next generation of sustainable construction.**
Kilbert, C. Building Research and Information, Volume 35 Issue 6 (2007) Pages 595-601.

IPENZ 08/67 Sustainable engineering : from myth to mechanism.

Environmental Quality Management, Volume 17 Issue 1 (2007) Pages 17-26.

IPENZ 08/68 Does sustainability sell? Market responses to sustainability certification.

Harris, S. Management of Environmental Quality, Volume 18 Issue 1 (2007) Pages 50-60.

√IPENZ 08/69 Carbon Zero.

Jayne, V. New Zealand Management, Volume 54 Issue 9 (October 2007) Pages 38-41.
Architectural firm Warren and Mahoney and their environmental sustainability practice.

IPENZ 08/70 From global warming to sustainable transport 1989-2006.

International Journal of Sustainable Transportation, Volume 1 Issue 2 (2007) Pages 73-89.

√IPENZ 08/71 Barriers to sustainable infrastructure in urban regeneration.

Hunt, D and Rogers, C. Proceedings of the Institution of Civil Engineers : Engineering Sustainability, Volume 158 Issue ES2 (June 2005) Pages 67-81.

IPENZ 08/72 Implementation of sustainable sanitation in existing urban areas : long term strategies for an optimised solution.

Kaufmann, I et al. Water Science and Technology, Volume 56 Issue 5 (2007) Pages 115-124.

IPENZ 08/73 Corporate and government accountability for sustainable environments.

Okcabol, F. Advances in Public Interest Accounting, Volume 13 (2007) Pages 151-175.

√IPENZ 08/74 Assessing impacts : an overview on sustainability indicators and metrics.

Dickison, T. and Beloff, B. Environmental Quality Management (Summer 2006) Pages 41-56.

√IPENZ 08/75 Sustainability assessment criteria for projects and technologies : judgements of industry managers.

Labuschagne, C and Brent, A. South African Journal of Industrial Engineering, Volume 18 Issue 1 (May 2007) Pages 19-33.

√IPENZ 08/76 Sustainability cost accounting : Part 2 : a case study in the South African process industry.

Labuschagne, C., van Erck, R and Brent, A. South African Journal of Industrial Engineering, Volume 18 Issue 1 (May 2007) Pages 1-17..

√IPENZ 08/77 Dams : setting a new standard for sustainability.

Bridle, R. Civil engineering (ICE), Volume 159 Special Issue 1 (May 2006) Pages 21-25.