IPENZ ENGINEERING UPDATE August 2010

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Management/Leadership/Strategic Planning/Recruitment/Training and Development/Project Management/Corporate Responsibility

√IPENZ 38/01 The decision-driven organization.
Blenko, M. W., Mankins, M. C. and Rogers, P. Harvard Business Review, Volume 88, Issue 6 (June 2010) Pages 54-62.
The article discusses six steps or basic principles for developing a decision-driven organization. The discussion focuses on the ideas of understanding which management decisions take priority and where in the organization they should be made, reorganization of the corporate structure around its value sources, and delegation of the appropriate amount of authority for decision making to those who need it. A misconception about organizational structure in relation to financial performance, the popularity of corporate reorganizations among chief executive officers, and the goal of a decision audit are mentioned. Examples are given including the reorganization of Yahoo! Inc. by chief executive officer Terry Semel in 2006.

√IPENZ 38/02 CEO succession: The ultimate measure of board performance.
Murphy, C. Corporate Board, Volume 31, Issue 183 (July/August 2010) Pages 12-16.

√IPENZ 38/03 Finding the right path.
Capron, L. and Mitchell, W. Harvard Business Review, Volume 88, Issue 7/8 (July/August 2010) Pages 102-107.
Executing a new strategy nearly always requires new resources and capabilities--and most firms seek them out the wrong way. In a 10-year study of 162 telecom companies, the authors found that organizations deploying all the methods available to them outperform those that stick with a narrow approach. Yet most firms doggedly pursue one chief method, whether it's developing what they've already got internally, entering into contracts with providers, forming partnerships, or using M&A. The framework in this article will help companies weigh their options more strategically.

√IPENZ 38/04 Don't abandon your work measurement cap.
Aft, L. Industrial Engineer: IE, Volume 42, Issue 3 (March 2010) Pages 36-40.
Discusses the role of work measurement techniques in today's workplace.

√IPENZ 38/05 Mine your business.
Hoffmann, L. Communications of the ACM, Volume 53, Issue 6 (June 2010) Pages 18-19.
The article discusses the measurement of employees' productivity via so-called shadow networks, the electronic information flow or interaction between people.

√IPENZ 38/06 Observe and report.
Greene, J. Industrial Engineer: IE, Volume 42, Issue 7 (July 2010) Pages 47-52.
Case studies of work measurement in U.S. industry.

√IPENZ 38/07 Corporate responsibility reporting in UK construction.
Brown, J., Parry, T. and Moon, J. Proceedings of the Institution of Civil Engineers: Engineering Sustainability, Volume 162, Issue ES4 (December 2009) Pages 193-205.

√IPENZ 38/08 Corporate social responsibility: Implications for performance excellence.
Foote, J., Gaffney, N. and Evans, J. R. Total Quality Management & Business Excellence, Volume 21, Issue 8 (August 2010) Pages 799-812.

√IPENZ 38/09 Opening Pandora's Box : Corporate social responsibility exposed.
Ludescher, J. C., and Mahsud, R. Independent Review, Volume 15, Issue 1 (Summer 2010) Pages 123-130.

√IPENZ 38/10 Sustainability reporting in Norway – an assessment of performance in the context of legal demands and socio-political drivers.
Vormedal, I. and Ruud, A. Business Strategy & the Environment (John Wiley & Sons, Inc), Volume 18, Issue 4 (May 2009) Pages 207-222.

√IPENZ 38/11 Isomorphism: An explanation for the popularity of public-private partnerships?
Connolly, C., Reeves, E. and Wall, A. Irish Accounting Review, Volume 16, Issue 1 (Summer 2009) Pages 1-19.
Does PPP deliver value for money?

√IPENZ 38/12 Civil engineers in public-private partnerships and as master planners for infrastructure development.
Ricaurte, J. L., Arboleda, C. A. and Peña-Mora, F. Leadership & Management in Engineering, Volume 8, Issue 4 (October 2008) Pages 276-286.

√IPENZ 38/13 Intergrated policies for environmental resilience and sustainability.
Hunt, J. Proceedings of the Institution of Civil Engineers: Engineering Sustainability, Volume 162, Issue ES3 (September 2009) Pages 155-167.

√IPENZ 38/14 Having their backs: Improving managers' skills in developing others.
Brown, P. T+D, Volume 64, Issue 4 (April 2010) Pages 60-64.
Significant improvements in how effective employee development programmes are can be achieved by a rather small investment in improving the skills of managers. This makes companies more attractive during these difficult economic times. Managers have time to develop their staff when they are not weighed down with administrative duties. Useful sources of information are competency models for jobs and a career path or map.

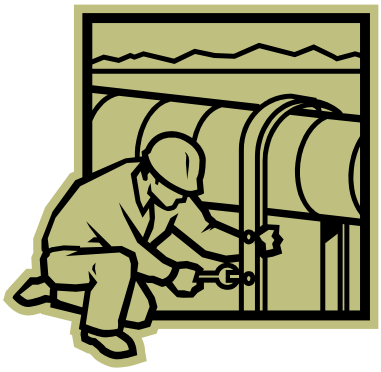
√IPENZ 38/15 Management consultants as professionals, or are they?
Greiner, L. and Ennsfellner, I. Organizational Dynamics, Volume 39, Issue 1 (January-March 2010) Pages 72-83.
This article highlights that merely doing consulting does not necessarily mean one is a professional, rather it is the consulting work/task that requires professionalism and sets the standard. The authors posit that many consultants do not match high standards in terms of education, certification and enforcement. This article considers the scope of the problem, the meaning of the term professional, the requirements of the consulting task and what stakeholders are doing to raise professionalism. It concludes with recommendations and next steps.

√IPENZ 38/16 No, Management is not a profession.
Barker, R. Harvard Business Review, Volume 88, Issue 7/8 (Jul/Aug2010) Pages 52-60.
Because managers hold a status in society similar to that of doctors and lawyers, it is natural to think of business as a profession--and of business schools as professional schools. But, argues Barker, a professor at Cambridge University's Judge Business School, that can lead to inappropriate analysis and misguided perceptions. We turn to professionals for advice, he writes, because they have knowledge that we don't. We trust their advice because they've been guaranteed by professional associations that establish the boundaries of the field and reach consensus on what body of learning is required for formal training and certification. These associations make a market for professional services feasible. Although business schools might be able to reach consensus on what they should teach, the proper question is whether what they teach qualifies students to manage. After all, successful businesses are commonly run by people without MBAs. Managers' roles are inherently general, variable, and indefinable; their core skill is to integrate across functional areas, groups of people, and circumstances. Integration is learned in the minds of MBA students, whose experiences and careers are widely diverse, rather than taught in the content of program modules. Thus business education must be highly collaborative, with grading downplayed, and learning must differ according to the stage of a student's career. Business schools are not professional schools. They are incubators for business leadership.

√IPENZ 38/17 What should we teach in structural engineering design?
May, I. M. Proceedings of the Institution of Civil Engineers: Civil Engineering, Volume 162, Issue CE4 (November 2009) Pages 187-191.
This paper reviews some recent discussion on the role of universities in the education and training of civil engineers and considers the guidelines offered by the UK Joint Board of Moderators on design in civil engineering degree programmes. Some discussion of other issues affecting the education of civil engineers is given. It is argued that emphasis should be given to the education of engineers at university and how this might be achieved in design is considered.

Technical Aspects of Engineering
Abstracts for most available on request.

√IPENZ 38/18 Design of lightweight floor system for optimized vibration comfort.
Zegers, S. F. A. J. G. Noise & Vibration in Industry, Volume 24, Issue 2 (Jan-Mar2010) Pages 39-47.



√IPENZ 38/19 Integrating counter-terrorist resilience into sustainability.
Coaffee, J. and Bosher, L. Proceedings of the Institution of Civil Engineers: Urban Design and Planning, Volume 161, Issue DP2 (June 2008) Pages 75-83.

√IPENZ 38/20 Seismic behaviour of steel-concrete composite beams.
Xue, W. C. et al. Proceedings of the Institution of Civil Engineers: Structures and Buildings, Volume 162, Issue SB6 (December 2009) Pages 419-427.

√IPENZ 38/21 Stochastic response of underground structures.
Hacıefendioğlu, K. and Bayraktar, A. Proceedings of the Institution of Civil Engineers: Geotechnical Engineering. Volume 161, Issue GE6 (December 2008) Pages 325-339.

√IPENZ 38/22 Performance estimation of prestressed concrete box girders.
Madhavi, T. Ch., Sekar, M. and Paramasivam, V. Proceedings of the Institution of Civil Engineers: Engineering and Computational Mechanics, Volume 163, Issue EM1 (March 2010) Pages 23-31.

√IPENZ 38/23 New Zealand's North Island main trunk railway: 1870 – 1908.
Merrifield, A. L. R. Proceedings of the Institution of Civil Engineers: Engineering History and Heritage, Volume 162, Issue EH4 (November 2009) Pages 207-219.

√IPENZ 38/24 Salt weathering of concrete by sodium carbonate and sodium chloride.
Haynes, H. et al. ACI Materials Journal, Volume 107, Issue 3 (May/June 2010) Pages 258-266.

√IPENZ 38/25 Source parameters of large historical (1917-1961) earthquakes, North Island, New Zealand.
Doser, D. I. and Webb, T. H. Geophysical Journal International, Volume 152, Issue 3 (March 2003) Pages 795-833.

√IPENZ 38/26 Modelling heat exchange between RCC dam and reservoir.
Bayagoob, K. H. et al. Proceedings of the Institution of Civil Engineers: Engineering and Computational Mechanics, Volume 163, Issue EM1 (March 2010) Pages 33-42.

√IPENZ 38/27 Maintenance of flood storage reservoirs.
Harding, N. Dams and Reservoirs, Volume 18, Number 2 (July 2008) Pages 79-83.

√IPENZ 38/28 Evaluating shallow water assumptions in dam-break flows.
Liang, D. Proceedings of the Institution of Civil Engineers: Water Management, Volume 163, Issue WM5 (May 2010) Pages 227-237.

√IPENZ 38/29 Factorial analysis of trihalomethanes formation in drinking water.
Chowdhury, S., Champagne, P. and McLellan, P. J. Water Environment Research, Volume 82, Issue 6 (June 2010) Pages 556-587.

√IPENZ 38/30 Bi-level fuzzy optimization approach for water exchange in eco-industrial parks.
Aviso, K. B. et al. Process Safety & Environmental Protection: Transactions of the Institution of Chemical Engineers Part B, Volume 88, Issue 1 (January 2010) Pages 31-40.

√IPENZ 38/31 Multi-stage response to contaminant ingress into water distribution systems and probability quantification.
Shen, H., McBean, E. A. and Ghazali, M. Canadian Journal of Civil Engineering, Volume 36, Issue 11 (November 2009) Pages 1764-1772.

√IPENZ 38/32 Dual-capacity heat pumps.
Kavanaugh, S. ASHRAE Journal, Volume 52, Issue 4 (April 2010) Pages 66,68-69.

√IPENZ 38/33 Effect of geometrical dimensions and waste water temperature on the performance of an induced air flotation unit for the treatment of industrial waste water.
Maliky, A. and Bash, S. J. Modern Applied Science, Volume 4, Issue 6 (June 2010) Pages 14-19.

√IPENZ 38/34 Investigating the fundamental basis for selectors to improve activated sludge settling.
Gray, D. M. D. et al. Water Environment Research, Volume 82, Issue 6 (June 2010) Pages 541-556.

√IPENZ 38/35 Life cycle water use of low-carbon transport fuels.
Harto, C., Meyers, R. and Williams, E. Energy Policy, Volume 38, Issue 9 (2010) Pages 4933-4944.

√IPENZ 38/36 Bioaugmentation to improve nitrification in activated sludge treatment.
Leu, S.-Y. and Stenstrom, M. K. Water Environment Research, Volume 82, Issue 6 (June 2010) Pages 524-536.

√IPENZ 38/37 Evaluation of greenwaste mulch to control runoff quality from landfill sites during frequent storms.
Brodie, I. M. and Misra, R. K. Water, Air and Soil Pollution, Volume 201, Issue 1-4 (July 2009) Pages 75-

√IPENZ 38/38 Concrete armor units for breakwaters.
Fozein Kwanke, N. J. et al. Concrete International, (October 2009) Pages 34-41.

√IPENZ 38/39 Wave power extraction from an oscillating water column at the tip of a breakwater.
Martins-Rivas, H. and Mei, C. C. Journal of Fluid Mechanics, Volume 626 (10 May 2009) Pages 395-415.

√IPENZ 38/40 Greening hospitals.
Switenki, P. and Lee, C. ASHRAE Journal, Volume 52, Issue 4 (April 2010) Pages 42-44,46,48.

√IPENZ 38/41 Air filtration efficiencies for hospital and health care facilities.
Nicholas, S. W. Engineered Systems, Volume 27, Issue 1 (January 2010) Pages 70-74.

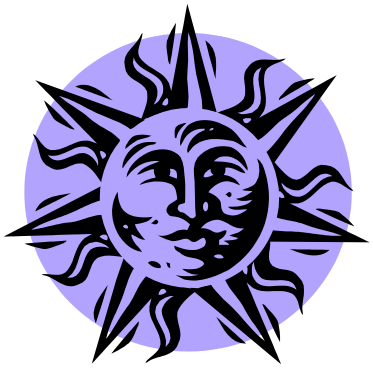
√IPENZ 38/42 Floor heating with displacement ventilation: An experimental and numerical analysis.
Causone, F., Olesen, B. W. and Corgnati, S. P. HVAC&R Research, Volume 16, Issue 2 (March 2010) Pages 139-151.

√IPENZ 38/43 The case for increased ventilation: What facilities engineers can do to help reduce employer's health-care costs. (Controlling disease spread in office environments)
Harlos, D. and West, M. Heating/Piping/Air Conditioning Engineering: HPAC, Volume 82, Issue 3 (March 2010) Pages 34-39.

√IPENZ 38/44 Sustainable ventilation in high-rise office buildings.
Wilkinson, R. Heating/Piping/Air Conditioning Engineering: HPAC, Volume 81, Issue 8 (August 2009) Pages 18-23.

√IPENZ 38/45 Natural ventilation in London underground sub-surface lines-modelling for normal operations.
Alexander, J. and Tabarra, M. ASHRAE Transactions, Volume 116 (2010) Pages 11-19.

Special focus –Geoengineering



√IPENZ 38/46 Climate change: Preliminary observations on geoengineering science, federal efforts, and governance issues.
Rusco, F. GAO Reports (18 March 2010) Pages 1-16.
Highlights of GAO-10-546T, a testimony before the U.S. Committee on Science and Technology, House of Representatives.

√IPENZ 38/47 Geoengineering the climate system: A Policy Statement of the American Meteorological Society. Bulletin of the American Meteorological Society, Volume 90 Issue 9, (September 2009) Pages 1369-1370,

IPENZ 38/48 Geoengineering and the climate: science, governance and uncertainty
The Royal Society, (London: September 2009).
Published findings of a major study into geoengineering the climate.

√IPENZ 38/49 Ranking geo-engineering schemes.
Boyd, P. W. Nature Geoscience, Volume 1 (November 2008) Pages 722–724.
Discusses the following geoengineering options: Carbon burial, geochemical carbon capture. atmospheric carbon capture, ocean fertilization, stratospheric aerosols, cloud-whitening and sunshades in space.

√IPENZ 38/50 The geoengineering gambit.
Bullis, K. Technology Review, Volume 113, Issue 1 (January/February 2010) Pages 50-56.
The article discusses the strategic plan of the U.S. government on funding geoengineering research to tackle climate change.

√IPENZ 38/51 Geoengineering the climate: The social and ethical implications.
Corner, A. and Pidgeon, N. Environment, Volume 52, Issue 1 (January/February 2010) Pages 24-37.

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√IPENZ 38/52 How to cool the planet: Geoengineering and the audacious quest to fix the earth's climate.
Goodell, J. Houghton Harcourt.. 2010.
Most of the scientific world now accepts that global warming is real and that the effects of pollution could be disastrous in the near future. Green technologies and clean energy sources are being studied. But will they be developed before our climate is too drastically altered by greenhouse gases? Goodell, a contributing editor for Rolling Stone and author of Big Coal, presents a history of geoengineering (climate engineering) and its role in possibly reducing global warming.

√IPENZ 38/53 International governance of a possible geoengineering intervention to combat climate change.
Virgoe, J. Climatic Change, Volume 95, Issues 1/2 (July 2009) Pages 103-120.

√IPENZ 38/54 Problems with geoengineering schemes to combat climate change.
Bala, G. Current Science, Volume 96, Issue 1 (1/10/2009) Pages 41-48.

√IPENZ 38/55 Engineering an Artful and Ethical Solution to the Problem of Global Warming.
Ralston, Shane J. Review of Policy Research, Volume 26, Issue 6 (November 2009) Pages 821-837.

√IPENZ 38/56 20 reasons why geoengineering may be a bad idea.
Robock, A. Bulletin of the Atomic Scientists, Volume 64, Issue 2 (May/June 2008) Pages 14-18.

√IPENZ 38/57 Geoengineering and climate change : Can it work?
Bulletin of the American Meteorological Society, Volume 89, Issue 2 (February 2008) Pages 146-149.
A workshop at Harvard University discussed the development of climate change science and possible geoengineering solutions. Issues addressed included whether publicity from potential projects might cause public complacency, a system using sodium hydroxide to absorb carbon dioxide directly from the air and the construction of 100 remote water-treatment plants to combine the chloride in salt to form hydrochloric acid

√IPENZ 38/58 The incredible economics of geoengineering.
Barrett, S. Environmental & Resource Economics, Volume 39, Issue 1 (January 2008) Pages 45-54.

√IPENZ 38/59 Enhancement of marine cloud albedo via controlled sea spray injections: A global model study of the influence of emission rates, microphysics and transport.
Korhonen, H., Carslaw, K. S. and Romakkaniemi, S. Atmospheric Chemistry & Physics, Volume 10, Issue 9 (2010) Pages 4133-4143.

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√IPENZ 38/60 **Geoengineering by stratospheric SO_2 injection: Results from the Met Office HadGEM2 climate model and comparison with the Goddard Institute for Space Studies Model.**
Jones, A. et al. Atmospheric Chemistry & Physics Discussions, Volume 10, Issue 3 (2010) Pages 7421-7434.

√IPENZ 38/61 **Benefits, risks, and costs of stratospheric geoengineering.**
Robock, A. et al. Geophysical Research Letters, Volume 36, Issue 19 (October 2009). Pages 1-9.

√IPENZ 38/62 **Geoengineering: Reshaping the Earth?**
Roberts, A. Chain Reaction, Issue 106 (August 2009) Pages 11-13.
Discusses the option of sulphur insertions into the stratosphere. Australian viewpoints of the political decision maker and the climatologist.

√IPENZ 38/63 **Ocean iron fertilization in the context of the Kyoto protocol and the post-Kyoto process.**
Bertram, C. Energy Policy Volume 38, Issue 2, February 2010, Pages 1130-1139.
Ocean iron fertilization is currently discussed as a potential measure to mitigate climate change by enhancing oceanic CO2 uptake. Its mitigation potential is not yet well explored, and carbon offsets generated through iron fertilization activities could currently not be traded on regulated carbon markets. Still, commercial interests in ocean iron fertilization already exist, which underlines the need to investigate a possible regulatory framework for it. To this end, I first discuss important basic aspects of ocean iron fertilization, namely its scientific background, quantitative potential, side effects, and costs. In a second step, I review regulatory aspects connected to ocean iron fertilization, like its legal status and open access issues. Moreover, I analyze how the regulations for afforestation and reforestation activities within the framework of the Kyoto Clean Development Mechanism (CDM) could be applied to ocean iron fertilization. Main findings are that the quantitative potential of ocean iron fertilization is limited, that costs are higher than initially hoped, and that potential adverse side effects are severe. Moreover, the legal status of ocean iron fertilization is currently not well defined, open access might cause inefficiencies, and the CDM regulations could not be easily applied to ocean iron fertilization.

√IPENZ 38/64 **Sowing seeds uncertain: ocean iron fertilization, climate change, and the international environmental law framework.**
Abate, R. S. Greenlee, A. B. Pace Environmental Law Review, Volume 27, Issue 2 (2010) Pages 555-598.

√IPENZ 38/65 **Space-based geoengineering: Challenges and requirements.**
McInnes, C. R. Proceedings of the Institution of Mechanical Engineers: Part C: Journal of Mechanical Engineering Science, Volume 224, Issue C3 (2010) Pages 571-581.

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√IPENZ 38/66 **The radiative forcing potential of different climate geoengineering options.**
Lenton, T. M. and Vaughan, N. E. Atmospheric Chemistry & Physics, Volume 9, Issue 15 (2009) Pages 5539-5561.
The aim of climate geoengineering is to remedy radiative imbalance through decreasing incoming solar radiation absorption or transferring CO2 from the atmosphere to reservoirs. Climate cooling effectiveness is one criterion for evaluating geoengineering options and this paper utilises a simple analytical approach, which finds that by 2050 the three options that have the potential to cool the climate back toward a pre-industrial state are stratospheric aerosol injections, albedo enhancement of marine stratocumulus clouds or sunshades in space. By 2100 strong mitigation together with global scale air capture and storage, afforestation and the production of bio-char might be able to do the same without the need for geoengineering. This common framework for evaluating climate geoengineering proposals and the results should assist the prioritising of further research.

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