



Skills shortage in engineering and transport

Number 8, (second edition) 2008

This is an updated of a Hot Topic first released in 2006

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1 **It's all about people: stemming the pending shortfall of new engineers**

Fusilli DP

Leadership and Management in Engineering 2007

Volume 7, Number 2, pages 74-76

This article contains Donald Fusilli's acceptance speech on winning the John I. Parcel-Leif J. Sverdrup Civil Engineering Management Award. Presented during the Leadership Luncheon at ASCE's Annual Civil Engineering Conference in Chicago in 2006, the award recognizes an engineer of high character and professional integrity who has made a definite contribution in the field of civil engineering management. Mr. Fusilli was encouraged to submit his acceptance speech to the Journal because of its inspiring content.

2 **Shortfall calls for smart employers: with \$100 billion in infrastructure projects planned around the country by 2010, Australia's leading employers of engineers and project managers are realising they need to take action to address the rapidly increasing skills shortage**

Tarr R

The Project Manager 2007

Volume 26, Number 7, pages 10-12

This article explores the options for both employers and employees in addressing the expected shortfall of engineers as baby boomers retire. Strategies covered include training, career progression, mentoring, project management and alternative talent pools.

3 **Addressing the skills shortage through mentor engineers, a South African experience**

Blaze G

Proceedings of the Cairns International Public Works Conference, 2007, Cairns, Australia

Cairns Media Corporate Productions, Cairns, Australia

8pp

This is an overview of the South African solution to a serious skills shortage in the entire engineering field. By using retired senior engineers to mentor and train younger graduates the South African Government was able to undertake vital infrastructure programs.

4 The impact of skills shortages on Australia's infrastructure

Taylor P

(Presentation from ARF National Roads Summit, Sydney, 2006)

Engineers Australia, Barton, ACT, Australia

Online [Accessed 5 December 2008] [Click here](#) for link to presentation.

This presentation examines the reasons behind engineering shortages and recommends that government, universities, Engineers Australia and Industry work together to ensure access to engineering courses. The presentation also examines the need for lifelong learning throughout an engineer's career.

5 Audit of science, engineering & technology skills: a summary report

Australian Government. Department of Education, Science and Training

July 2006

Canberra, ACT

Online [accessed 5 December 2008]. [Click here](#) to view

This audit examines the supply and adequacy of science, engineering and technology skills in the industry, government and scientific research sectors. The influence of overseas students on the supply and demand of science, engineering and technology skills is investigated, and recommendations put forward to ensure future shortfalls of skills in these subject areas will not be a problem.

6 Building the road safety profession in the public sector

Transportation Research Board. Committee for a study of supply and demand for highway safety professionals in the public sector.

Special Report, Number 289, 2007

Transportation Research Board, Washington DC

Online [accessed 10 December 2008]. [Click here](#) to view

This study examines the future supply of and demand for road safety professionals in the public sector. The challenge is to build a pool of skilled professionals who have the knowledge and expertise to advise and make informed decisions for public agencies charged with road safety responsibilities.

7 Where are all the women engineers?

Horwitz-Bennett B

Consulting – Specifying Engineer 2006

Volume 40, Number 1, page 45

The second in a three part series on women in engineering, this article covers the challenges faced by women engineers in the workplace. It reviews the current situation in the engineering profession and the perception of the profession being male-dominated. The author explores the experiences of a Russian female engineer and her rise to become vice president of a major engineering company in the United States.

- 8 **Gender gap in technology**
Mason S
Vital Speeches of the Day 2007
Volume 73, Number 4, pages159-163

This speech looks at the history of science and technology from the 1960's to date, and explores the programs set up by NASA and Purdue University to provide equal opportunities in science, technology and space. The Computer Science Women's Network at Purdue is dedicated to helping women in the computer science field. Their goal is to encourage women in computer science to stay in the field and prosper.

- 9 **A question of balance: Using self and peer assessment to change workplace culture to promote teamwork and self development in engineers**
Willey K, Gardner A
Proceedings of the Cairns International Public Works Conference, 2007, Cairns, Australia
Cairns Media Corporate Productions, Cairns, Australia
7pp

This presentation investigates a reported competency gap between the teamwork skills required by employers and those developed by engineering students during their undergraduate courses. The proposal to use self and peer assessment is recommended to promote teamwork, safeguard working culture and individual skill development.

- 10 **The engineering profession: a statistical overview, 5th ed.**
Kaspura A
2008
Engineers Australia, Barton, ACT
[Click here](#) to view

The statistical handbook provides information on the size, composition and changes in the engineering profession in Australia, and the implications for policy development and planning. The statistical overview investigates the supply of engineers, existing numbers of engineers, expected new graduates from educational institutions and skilled immigrants, and also the expected losses of engineers through retirement and emigration

- 11 **Projected problems: need a project manager for your next big IT project? With a skills shortage, Michael Young suggests ways to successfully foster organisational project manager capability.**
Young M
Management Today 2008
No 45, June, pages 32-33

This article emphasizes the importance of quality project management to business success. With a diminishing talent pool, government and industry management must plan and implement formal project manager development structures to ensure not only survival, but also excellence.

12 The industry capacity challenge

Doyle N

ARRB Conference, 23rd, 2008, Adelaide, South Australia

ARRB Group, Vermont South, Victoria

9pp

This paper examines the significant challenges facing the public sector in Queensland including labour shortages. Queensland Department of Main Roads is progressing a number of initiatives including strengthening the department's internal capability by seeking to establish itself as an employer of choice for those workers with professional and technical skills. The paper outlines the strategies in place to ensure delivery of planned infrastructure programs.

13 Preparing tomorrow's transportation workforce professional

Toole JS, Toole CL

Proceedings of the Transportation Research Forum, 48th, 2007

Transportation Research Forum, North Dakota, United States

17pp

This paper describes how the success and value of transportation is dependent on people. The factors which are likely to impact on this situation include the imminent retirement of large numbers of "baby boomers" that are currently affecting this mix that should be cause for concern. In addition, there are fewer students undertaking educational courses relevant to the transportation and engineering skills required in the industry. The transportation industry therefore, needs to be looking at strategies to attract and retain the workforce needed for the future.

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