LEA GROUP
LEADERSHIP EDUCATION AUSTRALIA

Engineering Leadership

Practical Implications of Initial Research Findings 18 June 2012

1. Current approaches to training and developing engineers for leadership

There were a wide variety of responses to this question which included

- Tertiary programs in collaboration with a university
- Organisation wide leadership programs (sometimes international)
- General leadership programs which include engineers
- On the job leadership programs
- Formal mentoring programs
- Ad hoc approaches to mentoring and development, sometime self-driven

The most consistent topic to arise in this section of the research was mentoring. Of the twelve respondents, two reported formal mentoring programs, and eight mentioned an ad hoc approach to mentoring. The large majority indicated that mentoring was a favourable means of developing engineers in leadership capabilities and that they would like to see more structure in their mentoring program.

Initial conclusion – engineering organisations may benefit significantly from a program that trains mentors and facilitates the establishment of effective mentoring processes for emerging engineering leaders

2. Engineering leaders of the future (2030)

A review and comparison of the responses to questions 2, 5 and 6 of the survey provided a snapshot of the desired characteristics for engineering leaders of the future. This provides some basis for what should be included in engineering leadership development today.

There was general agreement around the importance of continued high levels of technical engineering competency, and personal leadership characteristics such as ethical behaviour based on values. The frequency of mention of other leadership characteristics was noted and these were collated into some broad categories as shown in the table below. It is recognised that if presented with these list of characteristics, respondents may rank them differently, however this provides an initial indication of what leadership characteristics are forefront in the minds of engineering leaders.

Leadership Characteristic	Frequency of Mention (12 respondents)
Business	
Business knowledge, business drivers, financial understanding	7
Ability to win business	4
People and Teams	
People skills, communicating ideas effectively in ways that engage others	12
Leading teams, including multi-disciplinary teams, inspiring others	9
Coaching and developing others	4
Broad engagement	
Engaging stakeholders, clients, and community; forming alliances; developing shared outcomes; including the aspects of community, environmental, and sustainability	8
Influencing ability, political astuteness	3
Developing broad networks	2
Strategic capability in managing projects, able to see whole of business perspectives	7
Policy development	2
Other	
Vision and innovation	3
Ability to manage complexity	6
Flexibility, adaptability	3

It is clear that engineering leaders of the future will be expected to demonstrate enhanced capabilities in communication, developing engagement, leading teams, forming alliances of diverse parties, and working strategically across the business and within the wider community. The effective shaping of these skills and capabilities, in the opinion of some of the respondents, requires a shift in the self-perception and mindset which is prevalent in the profession, a shift from a somewhat passive solution development role to a more pro-active policy leadership role.

A summary of the responses would suggest that there has been a sense in the past of engineers dealing with objective realities, ie using theory and our engineering methods to develop an answer to a problem or situation. Engineers find what is right, and then present on that basis to others who they expect to buy in to this finding. Some used the word compliance as a prominent aspect of this approach. Engineers' perception of self and others and therefore communication style have been based on this idea to some extent, and this has positioned their role in organisations and community.

The suggestion was that the current and future world we operate in is much less about objective realities, and more about multiple realities which are based on what people's beliefs sets and emotion, which to them may be considered to be 'facts'. This does not resonate with the traditional engineering mindset which recoils into what is held to be 'correct, fact based' but is actually just another of the multiple realities that the community must engage with and balance respectfully. Engineers now and more so in the future must shift from being providers of engineering outcomes to skilled communicators who enthusiastically engage with multiple realities, no matter how 'non-engineering' they may seem, and collaborative move the argument/discussion to a better outcome. Engineers need to be well equipped to do this with a strategic mindset, and the skills to proactively engage with multiple stakeholder groups as respected leaders of the discussion process.

While this may be a generalisation about the profession, there was sufficient and sometimes passionate expression of similar views by respondents to suggest that this is a significant leadership development direction for engineers. Practically, this suggests development of a suite of related leadership capabilities including *leadership of self, leadership of teams,* and *influencing of stakeholders*. Some of the skills that may be addressed in developing these capabilities could be:

Leadership of Self

Developing emotional capital – awareness of self and impact on others
Self-perception – developing a creative mindset in a compliance driven world
Engaging with multiple realities, flexibility in thinking
Working well with complexity and ambiguity

Leadership of Teams

Communication styles and the needs of others
Models for defusing conflict and creating buy in
Developing team engagement and shared outcomes
Coaching and developing others

Influencing Stakeholders (ie effectively leading those over whom you have no power)

Understanding power in relationships
Building value-add networks and alliances
Tools for effective influence

Initial conclusion – emerging engineering leaders may benefit from intentional development in a suite of capabilities that will prepare them to more effectively communicate and engage pro-actively with a broad range of internal and external stakeholders