Can HERA drive industry transformation?

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0.1 Our success stories
What is Success? Our industry vision

That New Zealand's metals-based engineering has a sustainable advantage in local and global markets, by:

• Being competitive and winning business - yes
• Being profitable – yes
• Growing – not necessarily
  - Yes, where there is potential
  - Retrenching were needed in a planned way without big losses
• Sustainably responsible – yes
  - Triple bottom line: economic, social, environmental
• Responsive to change i.e. transformational – yes
  - Aware of disruptions
  - Able to transform

Success is the ability to go from one failure to another with no loss of enthusiasm
Success: steel construction

Multi storey: From nothing to market dominance

• BNZ Tower Disaster Wellington 1973 - 1981
• High rise market share basically 0%
• MoW – no steel in public sector high rise buildings!
• But great success SC e.g. in Japan so should work here
• HERA formation in 1978 by visionary industry leaders
• HERA strategy to grow market share
  - Appointment of key people e.g. Charles Clifton, Stephen Hicks
  - Development of standards and guidelines
  - Research capability in key areas – seismic, productivity
  - Industry training + company certification (SFC Scheme)
  - Marketing of steel construction under HERA–SSAS, SCINZ, and than independent SCNZ
  - Significant industry innovation - over 80 steel fabricators

• Today market share 50% nationally – 80% in Chch
Success: Welding Centre
Productivity for NZ’s welding industry

• HERA division established in 1986

• Research focus on welding fabrication productivity
  - Mig/Mag program
  - SS surface finish
  - HSS and fatigue
  - Cost effective joints for seismic loads

• Filling gaps in welding education and training
  - Welding professionals education
  - Welding training material for all of New Zealand
  - Free technical advice for all members

• Most recent SFC to international best practice
Success: networking

Bringing industry and stakeholders together

- HERA Executive, boards, panels and committees
- International and national linkages
- HEERF and its research fellowship program
- HERANews and HERA website
- Workshops and strategy reviews
- Stakeholder representation
- Industry sponsorship

Metals NZ & SCNZ

- Metals conference and Metals NZ founder/sponsor
- HERA Awards program
- SCNZ/HERA - coordinated actions for max outcomes
Success: Advocacy & Industry Promotion

Achieving favourable outcomes for Metals Industry

• Working with our stakeholders
  - Policy formulation where we’re competent
  - Providing advocacy facts through research
  - Supporting Metals NZ, SCNZ and other stakeholders

• Government interaction
  - With MP and officials
  - Representing and promoting industry
  - Developing submissions
0.2 Our projects with transformational focus
CSA: Composite Structural Assemblies

Competing with prefabricated concrete panels

- Major industry/government co-funded project
- Substantial protected IP based on fundamental principle giving structural strength and thermal insulation to light gauge steel components
- Proof of concept achieved
- Pilot fabrication plant ready
- Comprehensive stage-gating applied
- Was cost competitive - but only just
- Needed more costly R&D to get on market

And then came the GFC and the project stalled
AGGAT: Above ground geothermal and allied technologies

Create New Zealand renewable energy manufacturing industry based on ORC process

- Long-term industry transformation project with 10 year vision to have first NZ made products on market
- Good start-up industry buy in and initial 4 years of MBIE funding based on a renewable energy priority
- Successful AGGAT brand building with break-through technology development
- Industry co-funding expectation too high
- Renewable energy priority changed during project duration as did the cost of fossil fuels

And then: Change in MBIE R&D funding focus and AGGAT funding applications unsuccessful
HERA research partnership

Broad-based HERA research partnership proposal focusing on industry transformation in steel construction and renewable energy technologies

- Industry levy confirmed as eligible co-funding by MBIE
- Initial proposal progressed to 2nd stage
- Transformational horizon 2 type research projects
  - Novel composite construction concepts for multi-storey apartments
  - Fire engineering design for high rise steel structures
  - Cost effective and high performance welded fabrication
  - AGGAT research program
  - Business transformation research focus
  - Industry led projects such as “Carbonspace”

And then: ambitious project proposals didn’t find sufficient industry co-funding support
0.3 Industry perspective on transformational projects
Page Macrae Engineering: the company

Some statistics:

• Commenced trading 1955
• Core business was ship repairs
• Currently employ on average 230 people
• Revenues in excess of $40M – 25% in exports of own products
• Engineering projects, manufacturing and products
• 1-2% of revenue reinvested into R&D
• 20 plus apprentices
• Still proudly 100% privately owned by founding family
• Now into the 2\textsuperscript{nd} generation
Page Macrae Engineering: AGGAT experiences

Page Macrae’s perspective:

• PME were one of the 1st companies to enter the AGGAT program along with Fitzroy and ABS

• AGGAT seemed a good fit with the companies geothermal activities at the time.

• HERA staff were in the drivers seat

• It became clear that the level of commitment required was misunderstood

• The validity of the project came under scrutiny – was the market actually there?

• PME and Fitzroy reluctantly pulled out for roughly the same reasons

• Lessons learnt – industry needs the will and has to be firmly in the drivers seat
HERA Exec: Industry feedback and discussion

Industry buy-in and leadership critical

- HERA Exec were critical of the lack of industry buy in and meeting pilot plant objectives in AGGAT program

- Requirement for demonstrated industry co-funding and industry drive became a key discussion topic and part of HERA 2017/18 strategy review

- HERA Executive supportive of HERA Research Partnership proposal including
  - broad based across HERA member interests
  - horizon 2 type focus
  - mix of funding HERL + Govt R&D Incentive + Industry co-funding

- Executive noted with regret that the RP co-funding targets were not met and the proposal was cancelled

- Agreed with analyses that maybe members were either not well enough informed, too busy or lacked future focus
Could transformation have saved A&G Price or Amtec?

- **The hard facts for A&G Price in castings:**
  - Low cost countries deliver cost effective alternatives with acceptable quality
  - NZ free trade agreements removed tariff protection
  - NZ client cost pressures drive them to source more cost effective from overseas – A&G’s value not realised

- **AMTEC in NZ oil and gas**
  - Declining energy prices and demand reduced available work
  - Local competition is tough and adjustments needed to be made

- **Where there options?**
  - Teaming up with importers to deliver a high quality one-stop shop castings?
  - Own niche market product lines with IP ownership?
  - Both companies tried – but resources dried up
0.4 Our strategy review
HERA strategy review FY17/18

Industry vision

• NZ metals-based engineering has a sustainable advantage in local and global markets

Our mission

• To act as catalyst for industry innovation

Our three focus areas:

• Market Development
• Quality Engineering
• Metals Industry Promotion
Focus: market development

Objectives:

- Develop new opportunities using metals-based products
- Improve the value proposition for metals-based products
- Engage industry members in market development activity

Examples of R&D opportunities:

- Leverage current building boom to drive steel construction innovation
- Exploit industry’s productivity potential via strategically focused R&D programs
- Leverage R&D co-funding opportunities from the limited but stable industry levy base funding
- Use IT opportunities in “Industry 4.0” or “internet of things”
Focus: quality engineering

Objectives:

• Develop tool box which supports industry achieving quality outcomes
• Develop and maintain systems which assist industry to achieve and demonstrate product conformance
• Assist industry to develop a reputation for metals innovation

Examples opportunities:

• Build on client need for trusted and demonstrated product performance
• Bank on SFC scheme quality initiative and make it available to other industry sectors
• Increase industry readiness for transformational programs via complimentary educational and advisory programs
Focus: metals industry promotion

Objectives:

• Increase use of metals in NZ
• Increase NZ investment in metals R&D
• Achieve favourable policy outcomes for NZ metals based industry

Example opportunities:

• Promote the benefits and competitive advantage of steel in the market place and with stakeholders
• Combat threat of competition from non-conforming products via driving for demonstrated conformance by all
• Address the threat of an uneven “free-trade” playing field via co-operative advocacy with Metals NZ and other stakeholders
0.5 Some conclusions
Specific strategic objectives

HERA’s specific strategic priorities examples driving industry transformation over the next 3-5 years are:

1. Understand member capabilities and potential for growth
2. Strategically prioritised R&D program in all HERA disciplines – business opportunities research new focus
3. Deliver industry transformation programs
4. Improved industry buy-in into HERA transformational programs
5. Online delivery of technical and training guidance based on new IT platforms
6. Clarify process for demonstrating steel product conformance including in SFC
7. Implement training offering in new disciplines such as business transformation, fire engineering or new AS/NZS standards guidance
8. Promote a competitive industry which successfully exports and competes against imports
To conclude we believe:

- HERA success stories demonstrate that we can drive industry transformation
- Coherent subsector steel construction has critical mass for effective transformation but be wary of disruptions and boom bust cycles
- Smaller (and new) subsectors more difficult to mobilise
  - Lack of profitability to invest in R&D and innovation
  - Insufficient industry buy-in
  - Industry transformation skill set lacking
- How do we support the individual niche market player in its innovation effort?
  - Company consultation and business model research focus will give insight
  - Increased co-operation with other stakeholder such as Callaghan Innovation, university programs
  - Education focus and industry actions on business transformation will ignite developments.

But what did we miss to consider?