LEAN POST PANDEMIC

How do we boost global construction productivity?

Reimagining the Future workforce

LEAN CONSTRUCTION INSTITUTE FINLAND

little ideas
big impact

INSTITUTE OF INTEGRATED INFRASTRUCTURE LTD

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HOW DO WE BOOST GLOBAL CONSTRUCTION PRODUCTIVITY?

REIMAGINING THE FUTURE WORKFORCE

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Who are Claudelle and Kerry?

Outline

		Topic	Storyline
1		Shift in thinking	What has happened in the past? Why should we change? Has lean really been adopted? Has the pandemic affected us?
2		Opportunities for change	What has been happening in industry globally and in Australia? What are the trends in productivity? What does the future look like?
3		Factors affecting productivity	So what really influences productivity?
4		Current landscape	What is the current situation like? What are the problems in the industry?
5		Transformation	Do we think there should be changes to how we are working? What are ten areas that could change?
6		Forces	What are key forces that will influence our future workforce? Do we know enough to respond to these forces?
7		Workforce transformational change	What are areas for positive inquiry and thought leadership?
8		Call to action	Who would like to be a part of a globally connected thought leadership Institute?

Our shift in thinking

- **Education, Expertise, Equity**
- To explore new ideas to transform the next generation of integrated infrastructure implementation underpinned by sustainability, ethical work practices and diversity
- Productivity improvements is core to the lean philosophy
- Expanded to rethinking construction and reimagining the future workforce.
- Factors influencing productivity is so much larger than lean thinking.
- What are the next steps to reimagining lean?
- For too long we've been narrow in our outlook – we need to build a more comprehensive view to take us into the future.
- Fundamental and foundational approaches to research and development, international community of practice, developing an international future thinking workforce and upskilling current employees to lead the transformations needed.

Opportunities for change
Construction growth and demand

- There are many predictions with respect to global construction activity in the next decade and it has been speculated that we will see global growth up **by 35%** compared with previous decade.
- Such activity will be driven by unprecedented levels of stimulus spending on infrastructure and unleashing of excess household savings.
- Countries are facing challenges in meeting in the stimulus spending on infrastructure
- Globally, construction sector labor-productivity growth averaged 1% a year over the past two decades, compared with 2.8% for the total world economy and 3.6% for manufacturing. In a sample of countries analysed, less than 25% of construction firms matched the productivity growth achieved in the overall economies where they work over the past decade.
- **Without change, global need for infrastructure and housing will be hard to meet.**
- Skill shortages, people left industry and not coming into the industry, people are questioning the sustainability of this industry, lack of diversity,
- People expect more from their workplaces and demanding more from their employers' making choices by voting with their feet

Simon Liley, Co-Head, Global Engineering, said the construction and engineering industry is entering a period of "exciting opportunity" but also one that will require **new ways of approaching risk** by the insurance and reinsurance sectors.

*"These dynamics call for effective knowledge sharing from industry innovators at one end all the way through to reinsurance actuaries at the other. Understanding the shifting profile of exposure, and sources of capital will be important to enable insurers and reinsurers to establish underwriting platforms and **offer products** that meet the construction industry's changing needs."*

FACTORS INFLUENCING PRODUCTIVITY

- MGI Construction Productivity Survey confirms many **reasons** for this **poor performance.**
- The industry is extensively regulated, very dependent on public-sector demand, and highly cyclical.
- Informality and sometimes corruption distort the market.
- Construction is highly fragmented.
- Contracts have mismatches in risk allocations and rewards,
- Often inexperienced owners and buyers find it hard to navigate an opaque marketplace.
- The result is poor project management and execution, insufficient skills, inadequate design processes, and underinvestment in skills development, R&D, and innovation.

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Current Landscape

- poor project management and execution, insufficient skills, inadequate design processes, and **underinvestment in skills development, R&D, and innovation**.
- productivity performance of global construction is not uniform
- There are large regional differences, and **major variations** within the industry
- Never has the challenges with supply chain been more evident than during the pandemic; in both supply of products as well as integrated supply chain delivery

10 areas for transformation

Examples of innovative firms and regions suggest that acting in ten areas simultaneously could boost productivity by 50 to 60%. They are:

1. reshape regulation;
2. rewire the contractual framework to reshape industry dynamics;
3. rethink design and engineering processes;
4. build a new workforce of new thinkers to lead this productivity opportunity for us
5. improve procurement and supply-chain management and thus develop workforce skills
6. improve on-site execution
7. **infuse digital technology,** new materials, and **advanced automation**
8. **reskill the workforce**.
9. **recruit more positively** into the sector across all disciplines;
10. rebuild - as in many countries there is also a skills shortage due to the pandemic.

KEY FORCES FOR THE FUTURE

In summary our 8 key observations of the sector:

1. high growth and high risk
2. **climate change**
3. harness sectors growth
4. **digitisation, OSM, robotics and data driven assembly processes**
5. **connected supply chains**
6. knowledge sharing and innovators
7. **pivotal role in advancement of communities and economies**
8. But… do we have the **workforce** to take us forward? What does the future workforce look like?

Richard Gurney, Global Head of Construction, Marsh Specialty, suggests that **climate change** and the ESG agenda – and the risks and opportunities they present – are among the biggest challenges the global construction industry faces over the next decade.

*"These forces are **changing risk profiles** for the sector. Organisations must adapt in order to harness the sector's massive potential for growth while playing a pivotal role in the advancement of economies and communities around the world."*

Research and development areas for workforce transformational change

- The industry needs for the next decade are at a fundamental level of research and development leading to new ways of working and thus developing the current workforce capability and building the future workforce.
- Mental health and well-being: Suicide and mental health significant global problem
- Collaboration: Middle managers lack skills; training, short courses, public and private sector clients; time poor; project environments are intense
- Digital ecosystems: BIM and DE is fundamental to the skills of the future workforce; Robotics, offsite manufacturing, smart cities,
- Industrialisation and off site manufacturing: innovation, internal academies, productivity motives, integration
- Decarbonising construction: Large contractors may lack the will and/or strategies to measure, monitor and manage environmental sustainability
- Ethical construction: Modern Slavery Act; global problem; Client sustainable supply chain procurement; social justice
- Global mega projects: Extraordinary investment and huge over runs
- Inclusive and diverse workforce: Worldwide drive to build equity and diversity to create a new culture

Graham Robinson, Global Infrastructure & Construction Lead Oxford Economics, said rising investment in **digitisation and offsite manufacturing** will be expected to accelerate, fuelled by growth in **3D printed components, robotics and data-driven assembly** processes.

Who are we?

The Institute for Integrated Infrastructure (the Institute) is a leader of our community that catalyses, connects and critiques the knowledge and experience of integrated infrastructure thinking and methodologies within the Australasian property sector to drive continuous improvement and efficiency gains through the entire asset lifecycle.

We educate, advocate and champion change in the property sector to deliver a sustainable, best practice forward thinking industry to create healthy built environments.

The Institute is an organisation whose purposes are to:

1. Advance education by providing online training resources and other materials for the use of construction industry participants and key stakeholders which aim to:

- increase understanding of integrated infrastructure thinking and its benefits
- improve productivity in the construction industry
- improve sustainability in the construction industry

2. Enhance the natural environment by promoting and facilitating techniques which improve the sustainability of the construction sector

3. Promote changes in law and policy which improve the productivity and sustainability of the construction sector

Call to action

- **We have things happening but we would like to expand the III and go global … much more connected …**
- **Interested in cross country case studies and cross learning and sharing**
- **Sites can be more global – actors from anywhere in the world; remove onsite people … doing dirty dangerous work more Intelligently**
- **Industry academia**

Next steps

- We would like to hear from anyone in the audience who is interested in joining with us to explore some of these ideas in more detail.
- Claudelle and I are Board members of a new organisation the Institute of Integrated Infrastructure a research and development not for profit organisation.
- Our goal is to pursue engagement with like-minded thought leaders around the world and explore how to develop the new workforce to meet our societal and industry challenges.
- If you are interested in joining our network please reach out to us.
- Distinguished International Fellow

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