

NTI 2018, O and C Groups

Ann Arbor – University of Michigan
 July 30th, O Group, 10:30-11:45 a.m., NQ 1175
 July 31st, C Group, 7:30-8:45 a.m., NQ 2255
 Guidelines for Great Employers: Recruiting, Onboarding, Engaging, Developing and Retaining Your Talent



2018 World Economic Forum

***The 4th Industrial Revolution (Digital Technologies)
 Transforming Entire Industries***

Infrastructure and Urban Development Industry (IU) Has NOT Kept Up

*Many sectors still use primarily manual methods
 Offer traditional products/services
 Operate according to established practices/business models
 Resulting in a "lag" in productivity*

*IU's core engineering and construction alone accounts >6% of global GDP
 and employs >100M people, while a *negative* perception of the industry makes it
 difficult to attract required talent & close a significant talent gap*

Global Megatrends

Resource scarcity, demographic shifts, automation, digitalization and climate change are ALL affecting economies, governments and society in general

6 Transformation Imperatives to Transform Companies into RELEVANCE

1. Attract new talent & build up required skills
2. Integrate and collaborate across the industry
3. Adopt advanced technologies
4. Maximize the use of data & digital models
5. Review existing product portfolios & embrace new business opportunities
6. Enable change management and adaptiveness

The Future Requires NEW Skills

**74% of IU CEOs
Rate attracting new talent and
Building up required new skills
as one of top 3
Transformation imperatives**

Attract New Talent & Increase Skills

Expand Areas to Source & Recruit Talent

Look beyond traditional sources of talent:

- ❖ Digital skills from gaming industry can easily convert to BIM or AR/VR
- ❖ Modular thinking, lean process and manufacturing skills from auto industry
- ❖ Women are virtually untapped source of talent – comprise just 13% of IU and only 4% of electrical contracting workforce
- ❖ New job profiles and sought-after skills could attract more women and new workers in general

Attract New Talent & Increase Skills

We Have an IMAGE Problem 2/3 YouGov polled would never consider construction industry career

- ❖ Blue-collar workers think jobs are dirty and dangerous
- ❖ White-collar workers think jobs lack innovation and challenge
- ❖ Construction companies, Industry associations, governments and academia should image campaigns promoting relevance
- ❖ Play-up industry's role in solving key global challenges (reducing carbon emissions)
- ❖ Adopt innovative technologies, modernize workplaces, market attractive career paths, use tech-based training, recognize learning/development achievements

Change and Adaptiveness

Embrace comprehensive
change-management programs

Embrace flexible organizational structures

Embrace agile working methods

Digitalize Processes

Data and digital modeling are the backbone for

3D Printing
Autonomous equipment
Prefabrication

(going beyond BIM applications for design, engineering and construction – BIM has not changed operation and maintenance processes)

Digitalize Processes

Must **STRENGTHEN** Cybersecurity

- ❖ keep abreast of cybersecurity threat reports
- ❖ use strongest possible means to protect data systems
- ❖ monitor attacks on data systems
- ❖ share observations with other associates
- ❖ collaborate on strong anti-cybercrime alliances

Adopt Advanced Technologies

Construction Industry spends only 1% of total revenue on Research & Development

Manufacturing	3%
Aerospace	10%
Pharmaceuticals	13%

Integrate and Collaborate

Capture NEW Opportunities

- ❖ Enter new activities or business divisions
- ❖ Acquire expertise
- ❖ Integrated contracts
- ❖ Joint ventures
- ❖ Mergers and acquisitions

Review & Embrace

Review product portfolios & embrace new businesses

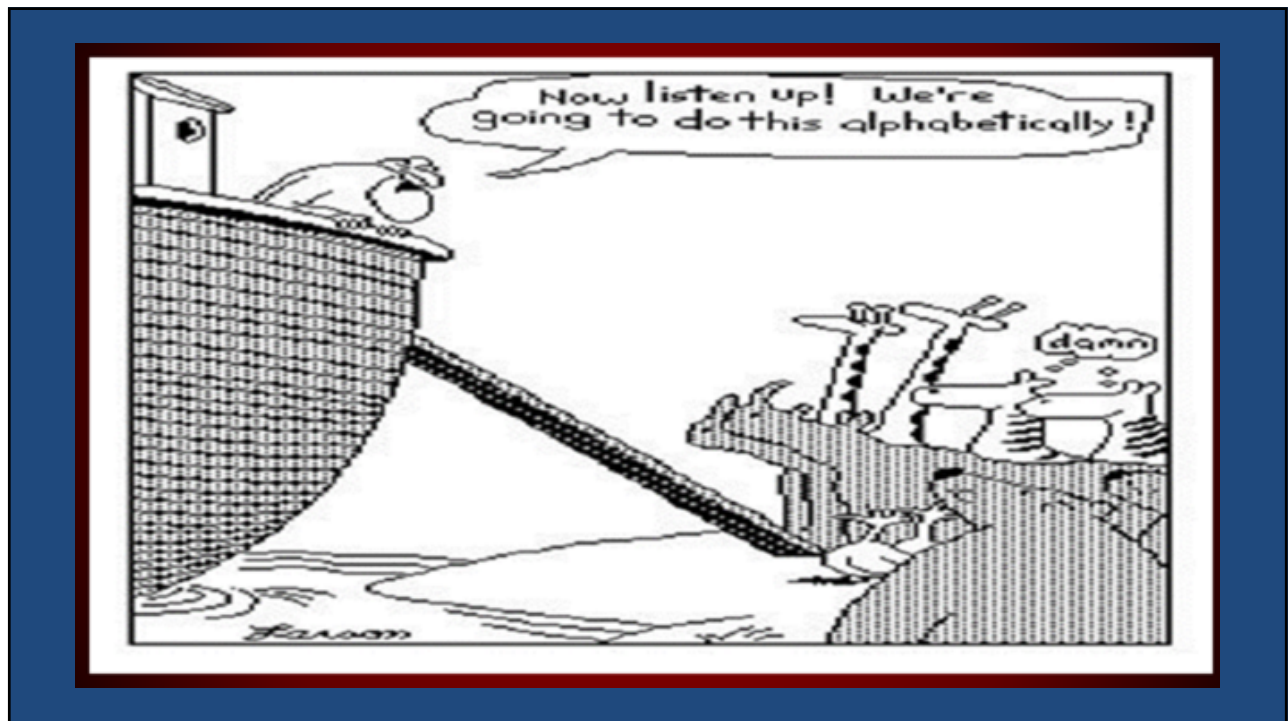
- ❖ Increase tracking of market developments
- ❖ Improve flexibility
- ❖ Hedge risks by maintaining a balanced portfolio
- ❖ Explore new ways to find game-changing business models


Find NEW Opportunities

Beyond R&D – explore new ways to grow

- ❖ Create dedicated innovation units
- ❖ Create business incubators and accelerators
- ❖ Create corporate venture activities
- ❖ Create a culture of COOPERATION not rivalry
- ❖ Become more agile and innovative








The graphic consists of a grid of hexagons. The central hexagon is highlighted in blue and contains the word 'TECHNOLOGY' in white, bold, uppercase letters. Surrounding it are other hexagons containing the words 'Engineering', 'Strategy', 'Innovation', 'Future', 'Product', and 'Compet'. The background is a blurred image of a person's hands interacting with a digital screen.

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The NECA logo features the letters 'NECA' in a serif font, with a stylized wave or ribbon graphic above the letters.