



Building logistics competencies in a new market: *The USA offshore wind case*

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CBS COPENHAGEN BUSINESS SCHOOL
HANDELSHØJSKOLEN

Introduction and background

Presenter Biographies

Dr. Britta Gammelgaard, Professor Supply Chain Management



Dr. Gammelgaard is professor at the CBS Department of Operations Management. Over the years, she has been academic responsible for a number of teaching programs on all academic levels at CBS. Presently, she directs a MSc Minor in Strategic Procurement and a tri-continental BSc program in Global Supply Chain & Logistics Management. She has received a number of awards for her research activities among them the Danish Hedorfs Fonds Transport Research Award. Her work has been published in Danish and international scientific journals, such as International Journal of Physical Distribution & Logistics Management, Journal of Business Logistics and International Journal of Operations and Production Management. Professor Gammelgaard is presently Editor-in-Chief for International Journal of Logistics Management and has served as European Editor of Journal of Business Logistics for a number of years.

Dr. John P. Saldanha, Associate Professor Supply Chain Management



Dr. Saldanha began his career in the merchant navy. He received his Ph.D. from Penn State. He has taught in the MBA, PhD and Executive Education programs at the Fisher College of Business, Ohio State. He moved to WVU to help start the Global Supply Chain Program where he holds the Sears Chair in Global Supply Chain Management at the Chambers College. His research is widely published and recognized with numerous awards. He is regularly invited to present his research at industry and academic fora including MIT and Lund University. He has also consulted with numerous multi-national corporations such as Dow Chemical and Volvo; government agencies including the West Virginia Department of Agriculture; and, non-profits. Dr. Saldanha is also a respected and award-winning teacher invited to teach and deliver seminars at several leading academic programs and fora in the U.S., Europe and Asia.

Institutional Profiles

Copenhagen Business School

CBS is Denmark's largest educational and research institution within business administration and economics in a wide sense. The university is committed to providing business-related education programmes and continuing education for the public and, in particular, the private sector. Programmes are based on a strong and internationally renowned research base which CBS works consistently to strengthen.

CBS is committed to communicating knowledge and new ideas to tomorrow's business leaders and society in general. Its main contribution in this field is research and research-based education, and investment in research and high academic standards is therefore crucial to CBS' contribution to society.

CBS was founded in 1917 and has around 20.000 students at all academic levels.

John Chambers College of Business and Economics West Virginia University

The Chambers College was founded on Nov. 10, 1951. The College offers ten bachelor's, ten master's, and two doctoral AACSB International accredited degrees. With an undergraduate enrollment of approximately 1,500, the College has more than 20,000 alumni worldwide. The College is committed to educating and transforming our students, West Virginia and our world toward greater prosperity, through research and scholarship.

West Virginia University (WVU) is a land-grant, public, comprehensive research university established in 1867. WVU is made up of three distinct campuses with the main campus in Morgantown, WV. The Morgantown campus offers 360 majors across 14 colleges and schools with over 26,000 enrolled students. WVU has attracted close to $195 million in research funding in 2020.

The offshore wind industry

- Wind energy
  - ➢Onshore and offshore wind farms



- Installed end 2019
  - ➢Onshore 622 GW
  - ➢Offshore 29 GW

In 2019 alone, a total of 23,000 wind turbines installed



- The supply chain of offshore wind
  - ➢Significant barriers, bottlenecks, and constraints

GWEC, 2020
Poulsen & Lema, 2017

The offshore wind industry – looking ahead

- The growth trend will continue

- Forecast 2050
  - ➢Onshore 5,000 GW
  - ➢Offshore 1,000 GW
    - ✓Significant share of floating offshore wind turbines

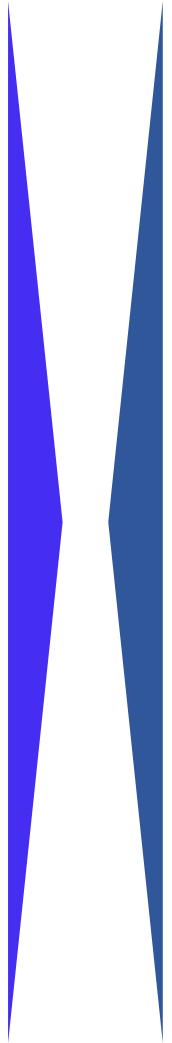


Poulsen & Lema, 2017
Panticon analysis

Paradox of wind logistics competencies

A new industry is emerging in the US

- The initial offshore wind farm projects are handled by non-US firms, personnel, and competencies (imported)
- No national targets in place yet
- A healthy state pipeline of future projects

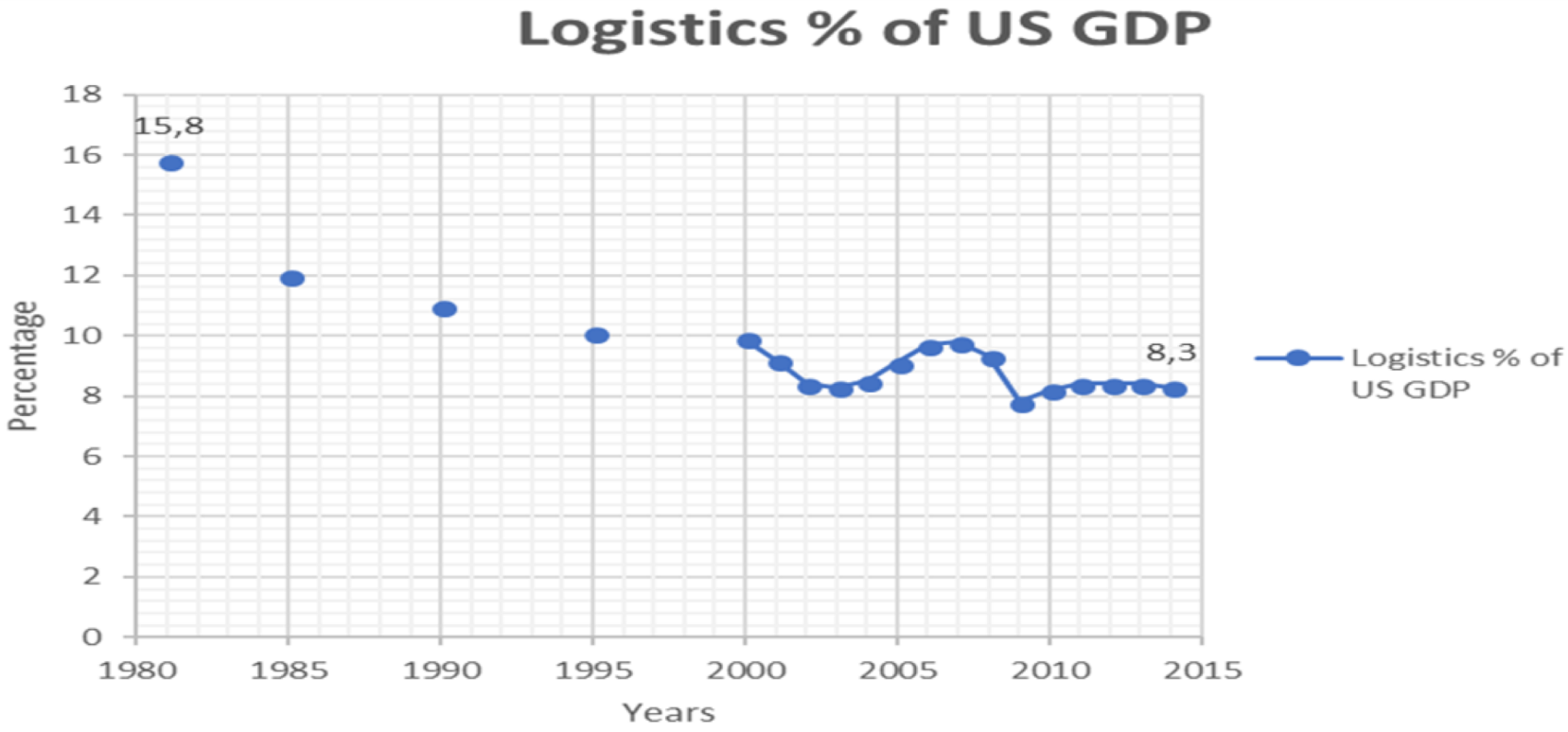


- No competence building available in the US
- No concerns voiced regarding lack of logistics competencies
- No call for logistics/SCM expertise

Why build offshore wind logistics competencies?

Logistics as a proportion of total cost

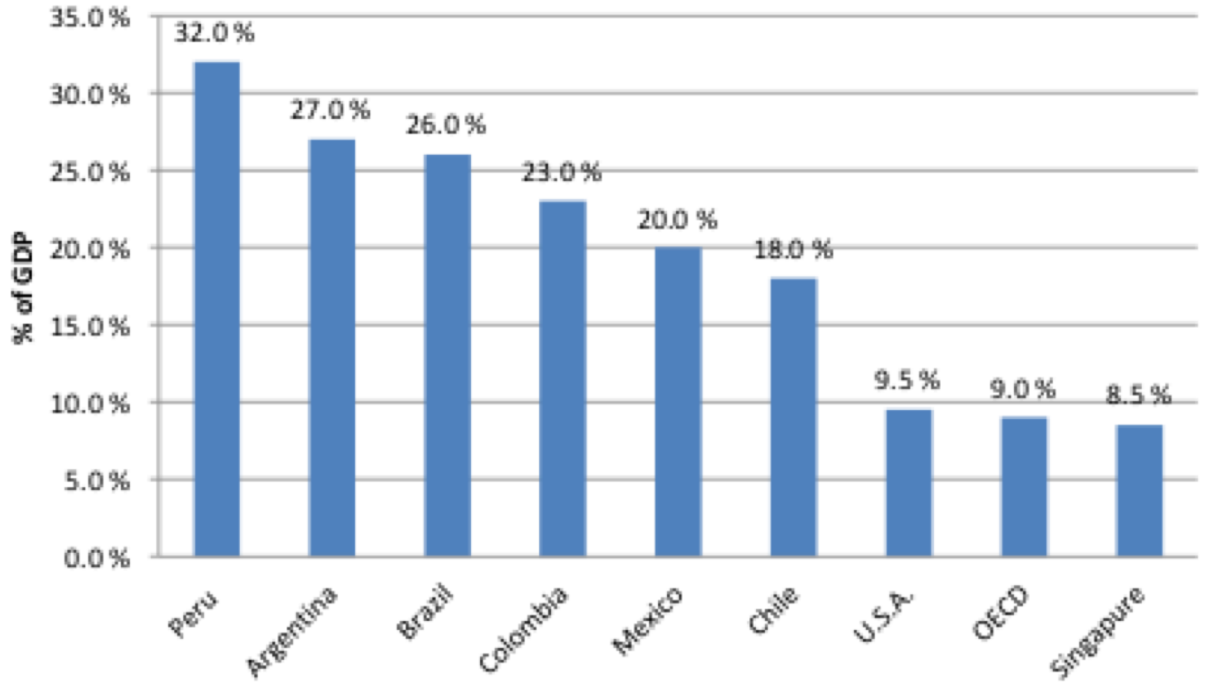
- Logistics costs as a percentage of US GDP nearly halved in three decades (15.8% in 1981, 8.3% in 2014)



- Industrialized economies driving down logistics costs as %age of GDP

Competency gap in established versus new markets

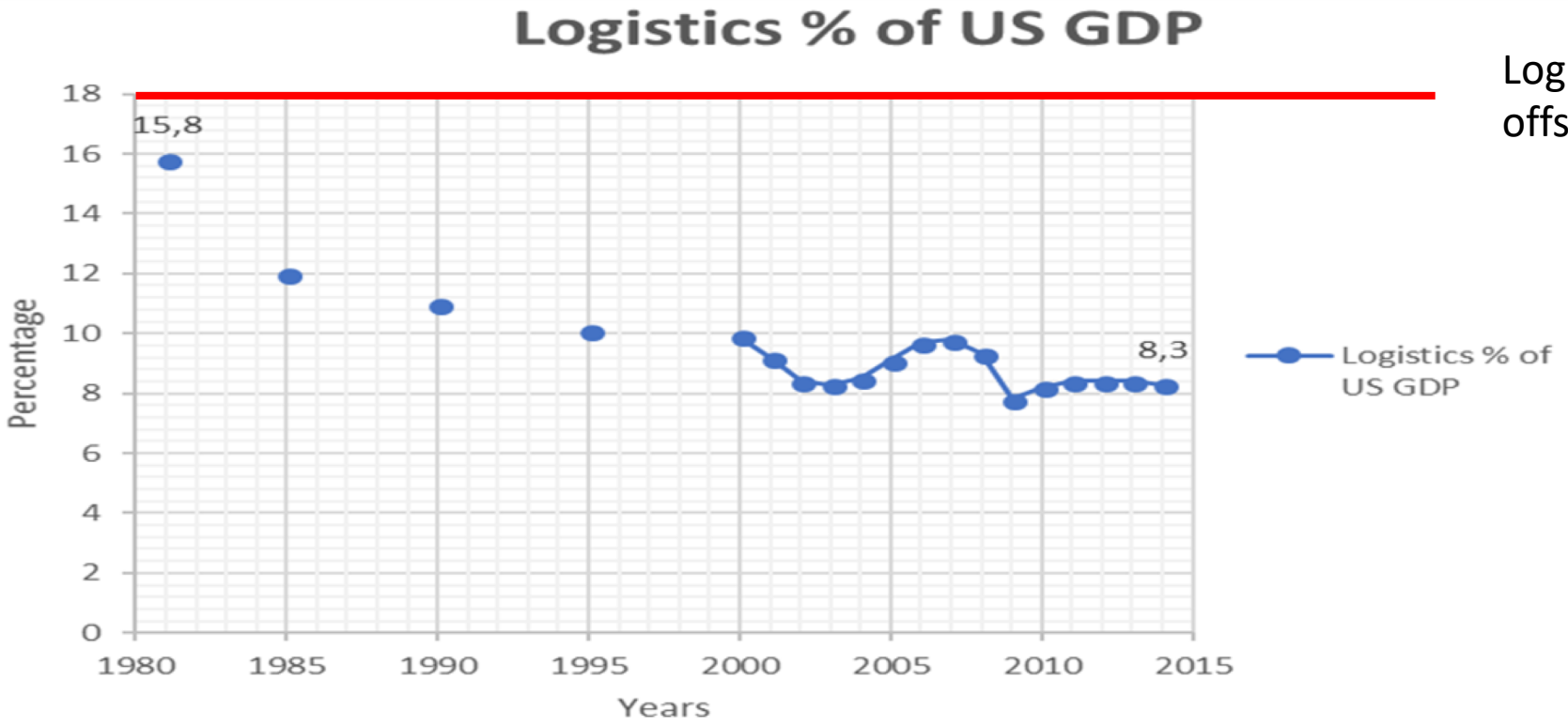
- Emerging markets doing so with limited success



- Function of limited logistics competencies e.g., Saldanha et al. (2015)

Why build offshore wind farm logistics competencies

- Compare this to offshore wind logistics cost that is at least 18% of levelized cost of energy



Logistics share of offshore wind LCoE

Rationale – more focus is needed

- Line-item disparity between different studies of the logistics share of operating expenditure for offshore wind

Cost item	Minimum	Maximum
Port operations costs	1.2%	31%
Vessel costs (incl. helicopters)	9%	38%

Poulsen et al., 2017

Logistics unlocks cost competitiveness of offshore wind energy

- Offshore wind must be self-sustaining and be cost competitive with extant power generation
- Logistics offers a competitive advantage to achieve lower levelized cost of energy
- We must develop the appropriate logistics competencies that will help these projects manage the supply chain and logistics costs

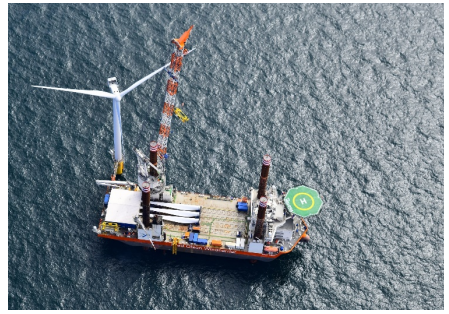




One-off versus pipeline of logistics talent

- One-off project
  - ➢Performance indicator is successful job done that one time
- Long pipeline of individual projects
  - ➢Competencies need to be built for the long-term







Need for logistics competencies at different levels

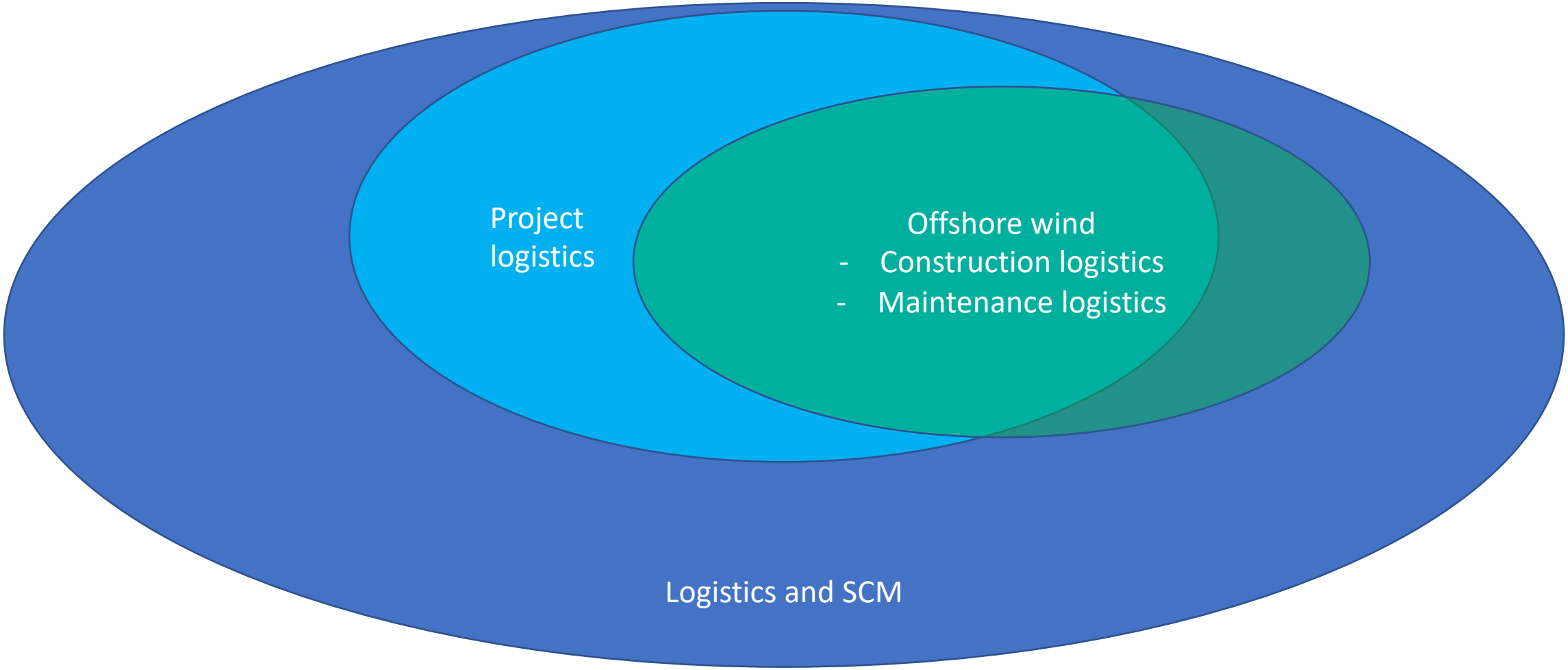
- Strategic
- Supply chain operations
- Front-line personnel



- *Logistics financial planning & analysis*
- *Logistics engineering*
- *Logistics planning*

Logistics disciplines and academic fields of study

- Overlap and synergies: the needs of offshore logistics management



The policy dimension of the supply chain footprint

- Job creation
- Constructing the US supply chain
- Location of the manufacturing, assembly, and hub facilities
- Key ports and transport systems
- Desire of each state to reciprocate tax payer subsidy







Proposition: Types of competencies needed

Horizontal:

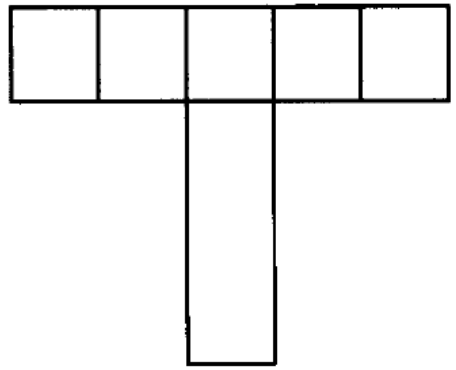
- Industry analysis, strategic management, and business planning
- Public policy and regulation (country by country)
- End2End SCM, supplier relationships / ecosystem, and SCM finance
- Circular economy/reverse logistics
- Maritime/offshore/project logistics/port logistics

Vertical:

- Logistics costs
- End2End planning for logistics of repeated activities throughout the offshore wind farm lifespan

Effective process management requires significant cross-functional skills.

Creating the 'T-shaped' skills profile:-



Managers have in-depth expertise in one discipline combined with enough breadth to see the connections with others

Mangan & Christopher, 2005. p. 181

Conclusion: Global working group to develop the competencies

- Offshore wind logistics is a new field of study
- Beneficiary of the trained students is the offshore wind industry
- An offshore wind industry advisory council should be established
- Industry needs should be converted to academic curriculum
- Match between industry needs and students with training

Thank you!

References

1) Council of Supply Chain Management Professionals
2) Global Wind Energy Council
3) Rantasila, K., and Ojala, L. (2012): *Measurement of National-Level Logistics Costs and Performance*, Discussion Paper 04, International Transport Forum, available at https://www.itf-oecd.org/sites/default/files/docs/dp201204.pdf (accessed 10 December 2020).
4) Mangan, J. and Christopher, M. (2005), "Management development and the supply chain manager of the future", *International Journal of Logistics Management*, 16(2), pp. 178-191
5) panticon.com (Panticon – analysis and photo source)
6) Poulsen, T. (2018): *Logistics in offshore wind*. Aalborg Universitetsforlag. Ph.d.-serien for Det Ingeniør- og Naturvidenskabelige Fakultet, Aalborg Universitet https://doi.org/10.5278/vbn.phd.eng.00046
7) Poulsen, T. and Hasager, C. B.: How Expensive Is Expensive Enough? Opportunities for Cost Reductions in Offshore Wind Energy Logistics, *Energies*, 9 (6), 437, June 2016; https://doi.org/10.3390/en9060437
8) Poulsen, T. and Hasager, C. B.: The (R)evolution of China: Offshore Wind Diffusion, Energies, 10 (12), 2153, December, 2017: https://doi.org/10.3390/en10122153
9) Poulsen, T., Jensen, C. M., and Hasager C. B.: The Role of Logistics in Practical Levelized Cost of Energy Reduction Implementation and Government Sponsored Cost Reduction Studies: Day and Night in Offshore Wind Operations and Maintenance Logistics, *Energies*, 10 (4), 464, April 2017; https://doi.org/10.3390/en10040464
10) Poulsen, T. and Lema, R.: Is the supply chain ready for the green transformation? The case of offshore wind logistics, *Renewable and Sustainable Energy Reviews*, Volume 73, June 2017, Pages 758-771; https://doi.org/10.1016/j.rser.2017.01.181
11) Saldanha, J. P., Mello, J. E., Knemeyer, A. M., and Vijayaraghavan, T. A. S. (2015): Implementing Supply Chain Technologies in Emerging Markets: An Institutional Theory Perspective, *Journal of Supply Chain Management*, 51 (1), Pages 5-26.
12) The International Renewable Energy Agency
13) windlogisticsgroup.com
14) windscm.com (Global Wind Energy Shipping and Logistics PhD research project)