Transportens Innovationsnetværk
Medfinansieres af Uddannelses-og Forskningsministeriet

”Wind Logistics Group”

Continuation of PhD Reference Group

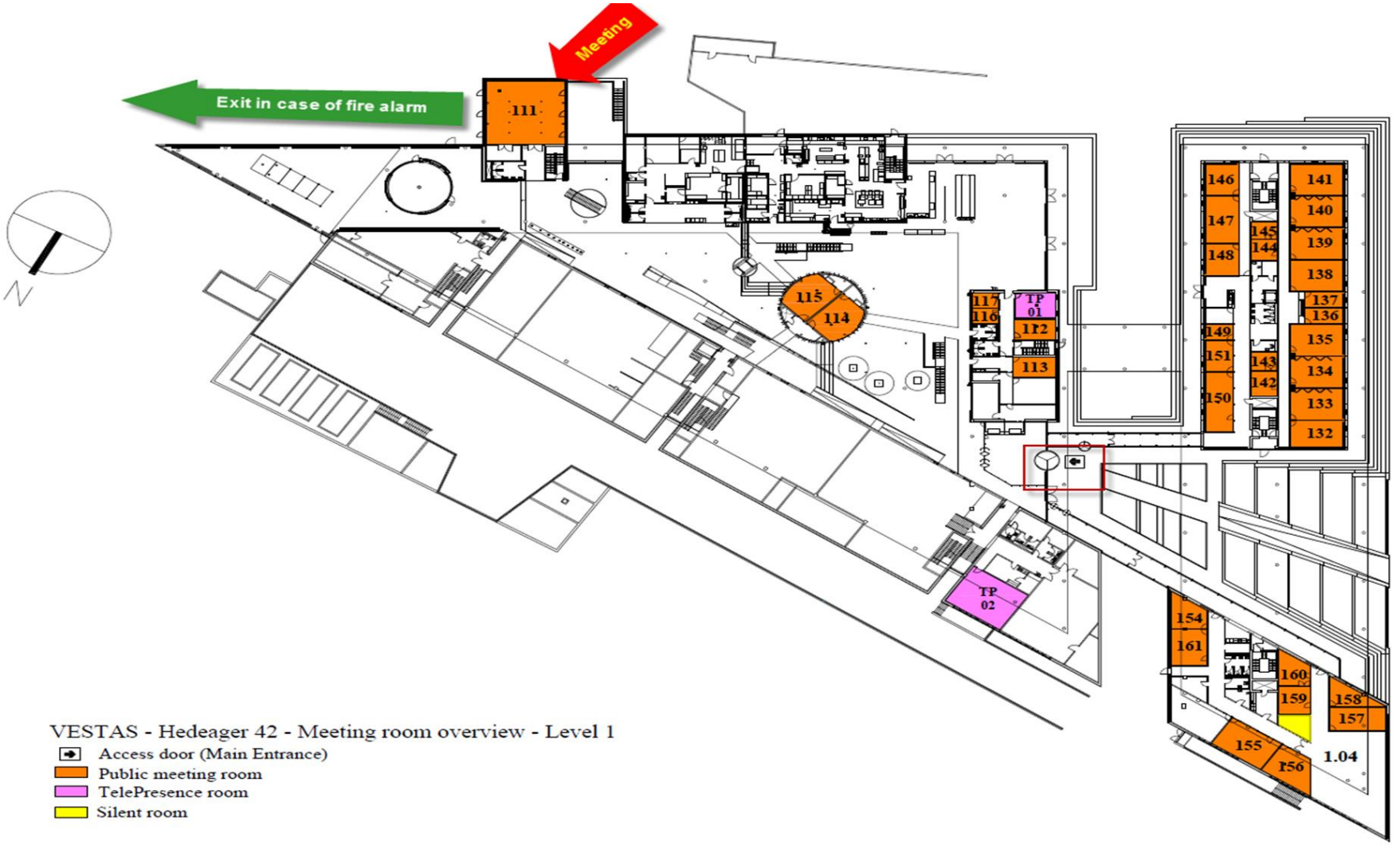
2nd meeting

Review and prioritize incoming project ideas

Flesh out 2-3 top ideas and decide on next steps

Global Wind Energy Shipping and Logistics PhD project Reference Group meeting (#11)
Meeting #2, Wind Logistics Group, November 4, 2019
Aarhus, Denmark

Welcome to Vestas



Your safety is our concern

No planned fire-drills today

After work meeting is in the other end of the building

Agenda

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1. Meeting opening, welcome, and agenda review during working lunch
2. New/changed Wind Logistics Group member organizations / changed participants – short introduction by new participants
3. Recap of decisions made regarding scope, purpose, and set-up at last meeting May 6, 2019
4. Review of project ideas including scoring from questionnaire
5. Discussion about project idea funnel and funnel criteria from questionnaire
6. Prioritization and selection of top 3 projects to work on
7. Group work to flesh out the 3 projects
8. Next steps between now and next meeting in May, 2020
9. Wrap-up and preparation for after work / "gå-hjem" meeting at 16:00 pm

Goals of today

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1. Review the incoming project ideas
2. Use the funnel and funnel criteria to prioritize the project ideas
3. Pick the top 3 project ideas
4. Work on these 3 project ideas in groups to flesh them out
5. Decide on a course of action until next meeting in May 2020

Introductions and new members

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- Let us briefly go around the room
  - Company background
  - Personal background
  - Why we think working on logistics in wind energy is a good idea

R&D

LM WIND POWER
a GE Renewable Energy business

ProCon

3. Recap

Decisions made May 6, 2019

- scope, purpose, and set-up of Wind Logistics Group

Participating organizations – May 6, 2019

- DHL
- DIS (host)
- Energy Innovation Cluster
- FORCE Technology/TINV
- GWEC
- MHI Vestas
- NorSea Group
- Vestas

- Thomas Poulsen (TINV/Panticon)

- Excused (confirmed members, did not attend):
  - AH Industries
  - BBC Chartering
  - Danish Shipping
  - Port of Aalborg
  - Siemens Gamesa

- Industry partners (did not attend):
  - Port of Esbjerg
  - Wind Denmark
  - Ørsted

Summary of key decisions (1/2)

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1. **Name:**
   - Wind Logistics Group
2. **Scope:**
   - Wind Logistics Group will focus on onshore wind logistics as well as offshore wind logistics
3. **Purpose:**
   - Primary purpose of the Wind Logistics Group should be to work on relevant and value creating joint projects within wind logistics
   - Secondary purpose is networking (after work meetings 2 times/year about wind logistics)

Summary of key decisions (2/2)

4. **Projects** selected by Wind Logistics Group to focus on will be funded separately
   - Joint learning and logistics synergies to add value
   - Scalability/global projects
5. **Next meeting**:
   - November 4, 2019 at Vestas, Aarhus

Summary of key discussions (1/2)

1. **Geographical focus.** The wind industry (including offshore wind) is not just Denmark; the business is rapidly globalizing
   - Norway, Sweden (nearby, short term), Germany, Holland, Belgium, UK (nearby, medium term), and China, Taiwan, Japan, South Korea, India, Australia, USA (further away, long-term)
2. **Members.** More members for the Wind Logistics Group could be considered
   - Denmark: Vattenfall, BMS, Energinet, LM Wind Power, Bladt, DEME Offshore, Swire Blue Ocean
   - Nordic: Equinor, AKER Solutions, Fred Olsen, Norwegian Energy Partners
   - Europe: Van Oord, Boskalis, Jan De Nul, Fugro, Seajacks, E.ON, EEW
3. **Funding and project prioritization.** A "funnel" with selection criteria should be applied and lead to selections of projects to work on and achieve funding support for (private, public, or combination thereof)

Summary of key discussions (2/2)

4. **Value creation.** It is critical to create value to the members and the industry from the projects worked on by the Wind Logistics Group
   - Better health/safety/security/quality, revenue increases to member companies, cost reductions, shorter time spent, better processes, greater logistics synergies, standardization, digitalization, automation, and organization
5. **TINV platform** (link) to sponsor the involvement of Thomas Poulsen in the preparation, execution, and follow-up of 4 Wind Logistics Group and after work meetings during 2019 and 2020, every 6 months
   - Relevance to Danish firms
   - Support to TINV

Track-record of the group

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	Date	Hosting organization	City in Denmark	After work / 'gå-hjem'
1	August 28, 2013	Aalborg University	Copenhagen	No
2	March 20, 2014	Ørsted (then DONG Energy Wind Power)	Gentofte	Yes
3	September 2, 2014	Energy Innovation Cluster (then Offshoreenergy.dk)	Esbjerg	Yes
4	March 17, 2015	Per Aarsleff A/S	Hvidovre	Yes
5	September 2, 2015	Siemens Gamesa Renewable Energy (then Siemens Wind Power)	Brande	Yes
6	March 9, 2016	Port of Esbjerg	Esbjerg	Yes
7	August 24, 2016	Danish Shipping (then Danish Shipowners' Association)	Copenhagen	Yes
8	March 29, 2017	DHL Global Forwarding Industrial Projects	Copenhagen	Yes
9	November 12, 2018	Port of Aalborg	Aalborg	Yes
10	May 6, 2019	DIS	Stilling	Yes
11	November 4, 2019	Vestas	Aarhus	Yes

9 meetings with an academic objective, i.e. to support the
Global Wind Energy Shipping and Logistics PhD research project of Thomas Poulsen

From the 10th meeting and onwards, new name "Wind Logistics Group" and new purpose/scope

Concurrently updated project websites

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- Global Wind Energy Shipping and Logistics PhD Research Project

  2013 – 2018

  www.windscm.com (project home)

  www.energytransportsummit.com (the conferences)

- Wind Logistics Group

  2019 ->

  www.tinv.dk (hosting platform)

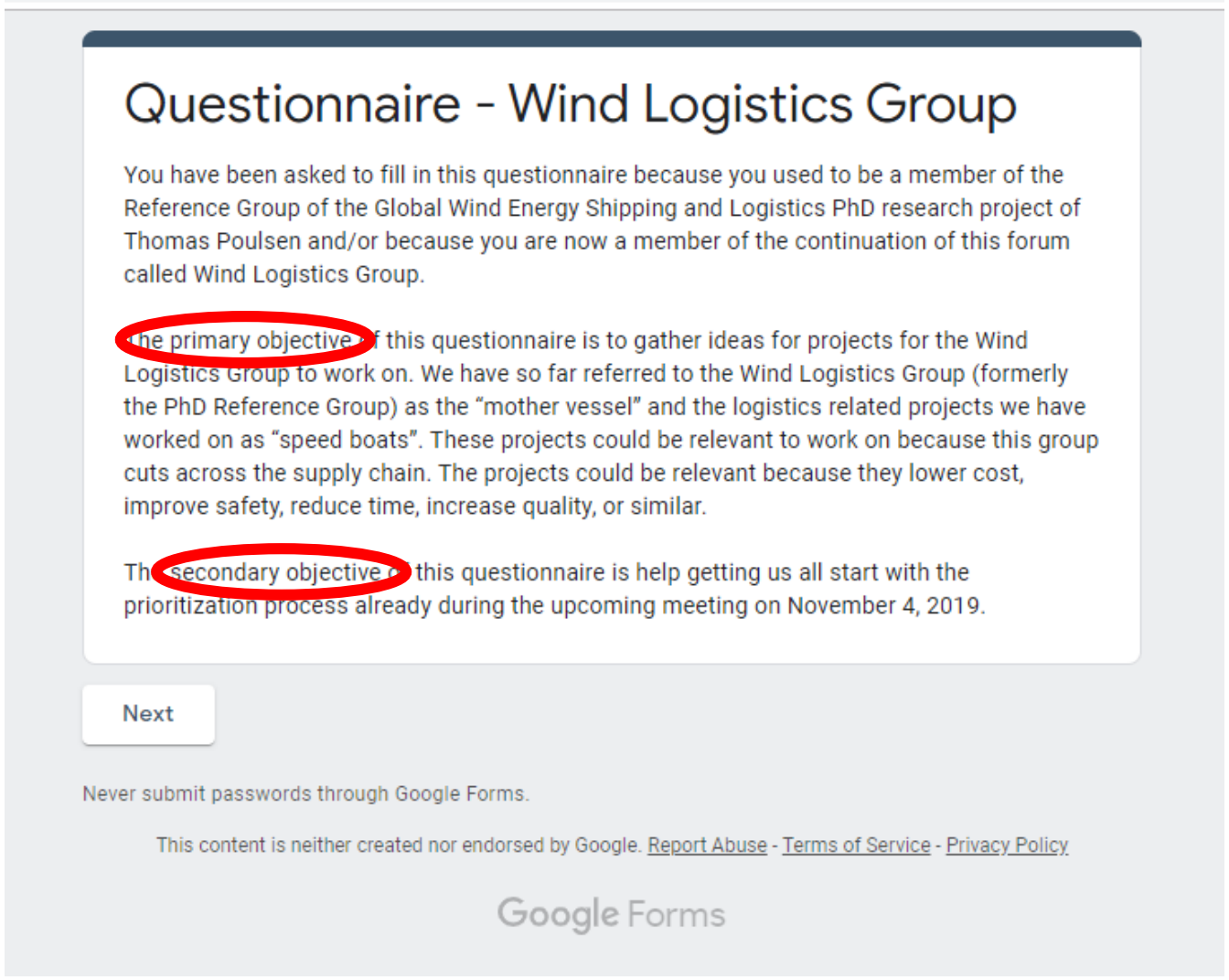
  www.windlogisticsgroup.com (download center)

4. Project ideas – the ”speed boats”

Scoring in questionnaire

New ideas generated

Advance questionnaire



Questionnaire - Wind Logistics Group

You have been asked to fill in this questionnaire because you used to be a member of the Reference Group of the Global Wind Energy Shipping and Logistics PhD research project of Thomas Poulsen and/or because you are now a member of the continuation of this forum called Wind Logistics Group.

The primary objective of this questionnaire is to gather ideas for projects for the Wind Logistics Group to work on. We have so far referred to the Wind Logistics Group (formerly the PhD Reference Group) as the "mother vessel" and the logistics related projects we have worked on as "speed boats". These projects could be relevant to work on because this group cuts across the supply chain. The projects could be relevant because they lower cost, improve safety, reduce time, increase quality, or similar.

The secondary objective of this questionnaire is help getting us all start with the prioritization process already during the upcoming meeting on November 4, 2019.

Next

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Google Forms

Look and feel

<u>Primary goal:</u>

- Project ideas

<u>Secondary goal:</u>

- Prioritization via the funnel

Thank you for your responses!

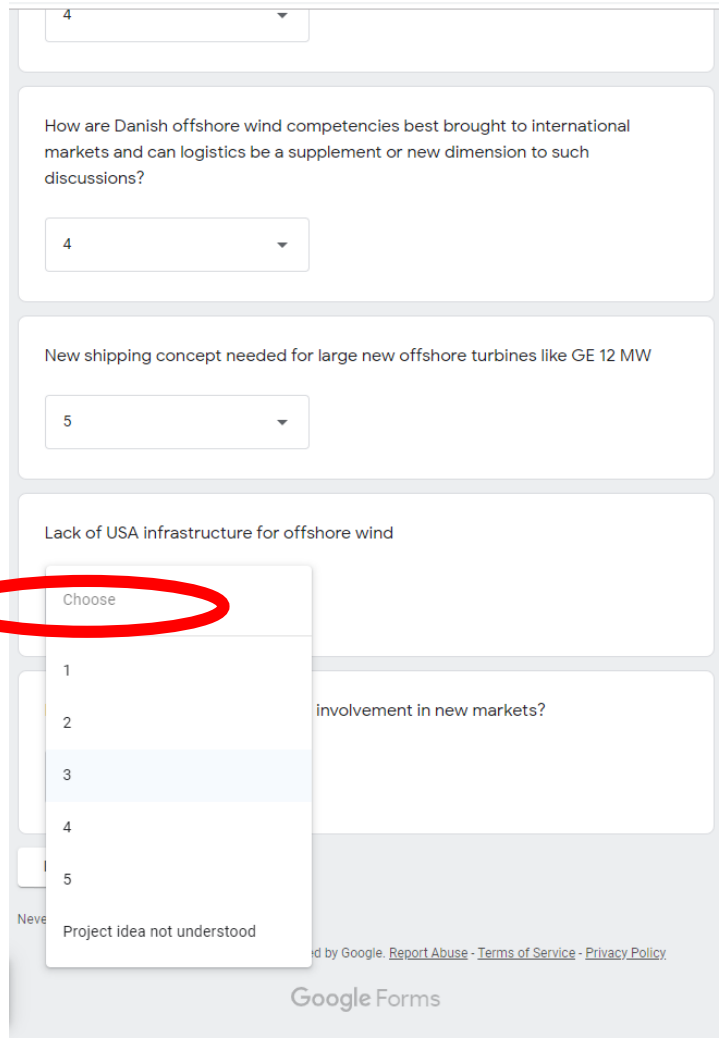
- 17 responses received (as of November 1, 2019 at 22:00 PM vs. deadline of October 23, 2019)
  - *Challenges faced: A google account is required to respond*

- Proposal ranking: 1 = not very relevant
  5 = extremely relevant

- Highest possible score: 85 (17 x 5)

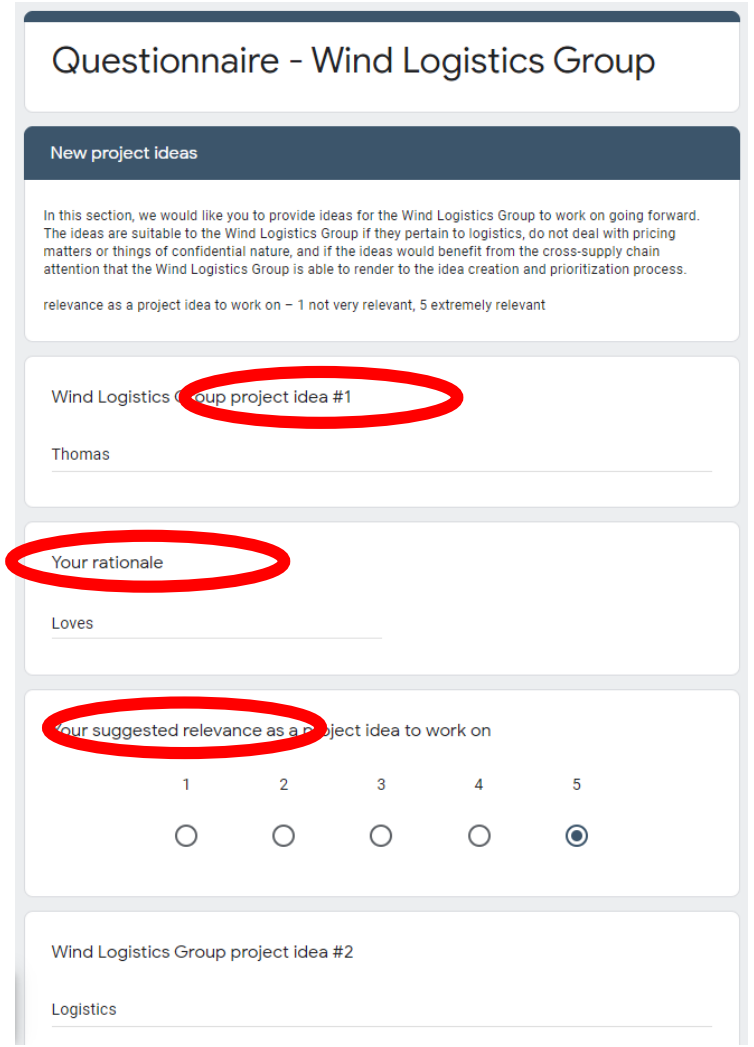
  - *It was possible NOT to vote*
  - *It was possible to tick "project idea not understood"*

Your votes and new project ideas



Voting

New ideas



Lots of voting and new ideas!

- Project ideas gathered in advance for you to vote on:
  - From last meeting on May 6, 2019
  - From 1-on-1 meetings prior to the May 6, 2019 meeting
  - From 1-on-1 meetings prior to this meeting

- You voted on a total of 26 project ideas gathered in advance
  - Average score was 3 (based on available range from 1 to 5)
  - Highest got 3.9 of 5
  - Lowest got 2.2 of 5

Background

- 4 categories
  - Cost 5x
  - Innovation 3x
  - Internationalization 16x
  - Environment 2x

- Project description quality
  - Project idea understood by all 9x
  - 1 of 17 did not understand 9x
  - 2 of 17 did not understand 7x
  - 3 of 17 did not understand 1x

Your top 10 ranking of advance ideas

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Ranking	Project idea	Score	Type	Category
1	Cost reductions in wind logistics	3,9	Generic	Cost
2	New shipping concept needed for large new offshore turbines like GE 12 MW	3,9	Specific	Innovation
3	Internationalization to new markets	3,7	In-between	Internationalization
4	Standardization in wind logistics	3,7	Generic	Cost
5	Lack of USA infrastructure for offshore wind	3,6	Specific	Internationalization
6	Local content requirements of new markets	3,4	In-between	Internationalization
7	Vessel regulations in new markets (cabotage, flag, crew, and class requirements)	3,2	In-between	Internationalization
8	Sharing of knowledge available in Denmark/Europe before entering new markets	3,2	Generic	Internationalization
9	Tools for supply chain development. How to set up a supply chain from scratch, in part or in full (local content)?	3,0	In-between	Internationalization
10	Green fuels	3,0	Specific	Environmental

The next 16 advance ideas

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Ranking	Project idea
11	Automation and digitization in wind logistics
12	New offshore wind markets of South Korea, Japan, and India. Joint logistics task force?
13	Green supply chain in wind logistics (reduce emissions)
14	How are Danish offshore wind competencies best brought to international markets and can logistics be a supplement or new dimension to such discussions?
15	Logistics decision support. How to set up and orchestrate the supply chain strategically incl. options?
16	Asia-Pacific market entry
17	Fabrication and transportation options in new markets
18	How to stay relevant and maintain involvement in new markets?
19	Logistics for floating offshore wind foundations
20	The application of drones in wind logistics
21	Autonomous vessels
22	Create a ”global logistics hub” building in select markets: Taipei, Seoul, Tokyo, Boston, NY-NJ, etc.
23	Local vessel contractors and sub-contractors in new markets
24	Local marine and logistics specialist law firms in new markets
25	Taiwan vessel flag conference. Authorities, ship owners, and other key stake-holders in TW market
26	Global supply chain design ”black box” plug’n’play set-up. IT ERP system for logistics (daily operations)

New ideas were generated

- You had the chance to outline new ideas
  - Including rationale
  - And your own vote

- 15 new ideas received
  - Nobody else have seen so far; only the one who proposed it

- We are 20+ people in the room today; only 17 responses
  - Some responses also from people not in attendance today incl. Ørsted
  - We have not exhausted the idea generation process just yet

The 15 new ideas (not in prioritized sequence)

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Project idea
Vessel & Marine Operations standards
Building a Danish competence across companies (maybe in some form of joint marketing venture) that can jointly be taken overseas into new markets so as to build a dominant position globally in the wind industry
Rational weather criteria for vessel operations in offshore wind parks
Bundle a few of the mentioned projects relevant for emerging markets
How to reduce the cost of logistics for onshore wind in the subsidy free market?
Standardization within Port Service like Logistics, Stevedoring, Agency, pre-assembly, incl. mob. & demob. of vessels / base facilities
CO_2 neutrality in total supply chain
Internationalisation to China for the Danish Logistics supply chain for offshore wind
OEM´s open patents on transport solutions, equipment, and processes (standards)
Competences gap in new markets
The suggestion in #2 above will require finance. And, in order to ultimately compete with Chinese companies, it will need to demonstrate the competencies but it will also need to provide substantial financing.
Digital monitoring of identified KPI's for port operations
Decommissioning
Map and establish/invite all relevant foundations, that can fund our projects
Include the US market in the group

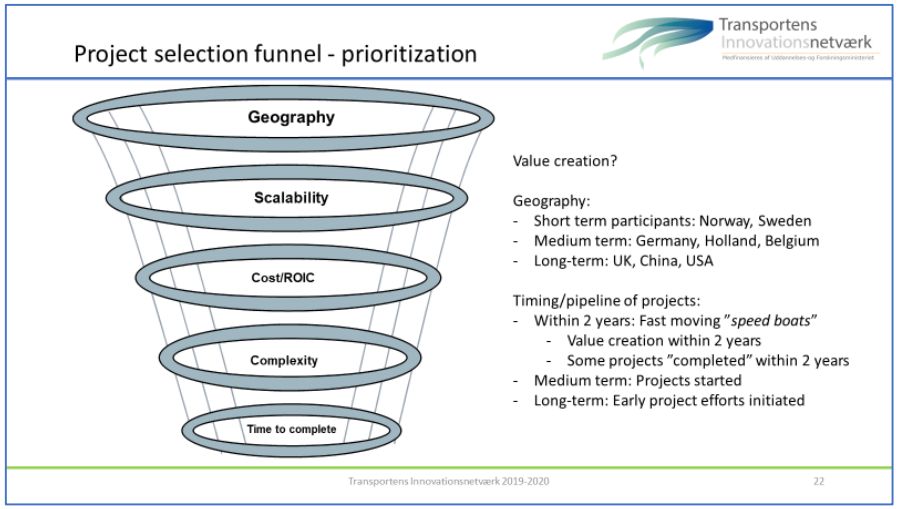
5. Discussion

Project idea funnel

Selection criteria

We also wanted to take the funnel forward

- Each meeting to prioritize
  - ➢Project ideas
- Use of funnel
  - ➢Application of selection criteria
- Create shortlist of projects
  - ➢Work on in-between “mother vessel” meetings every 6 months



Slide from last meeting

Thank you for your input on funnel criteria!

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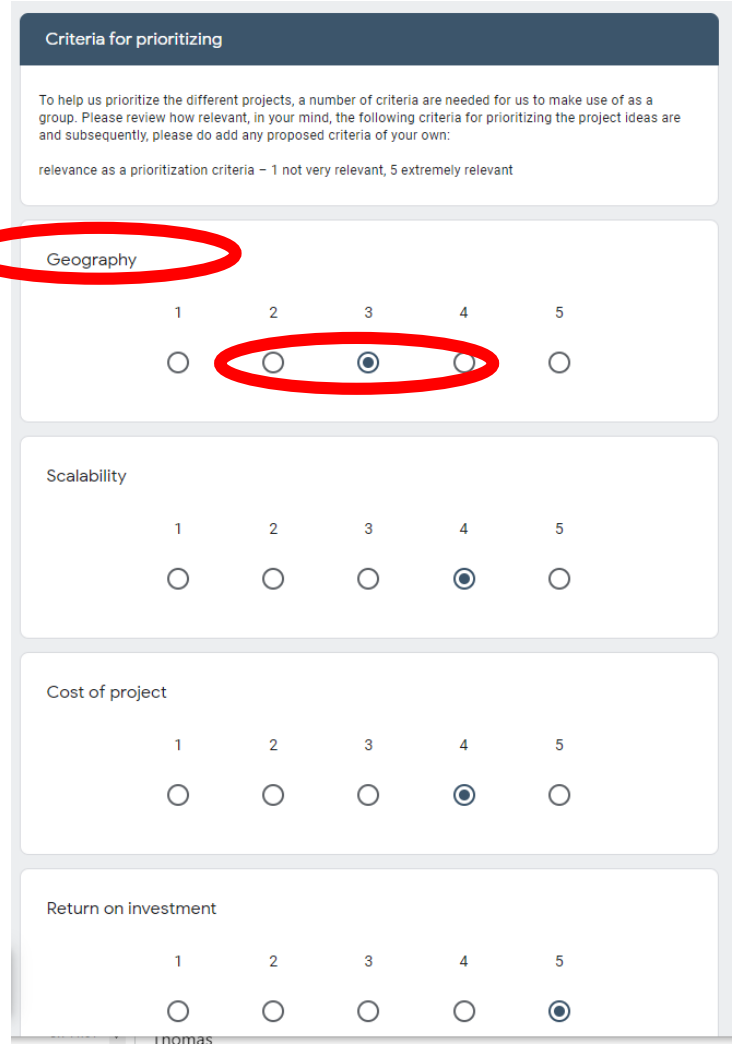
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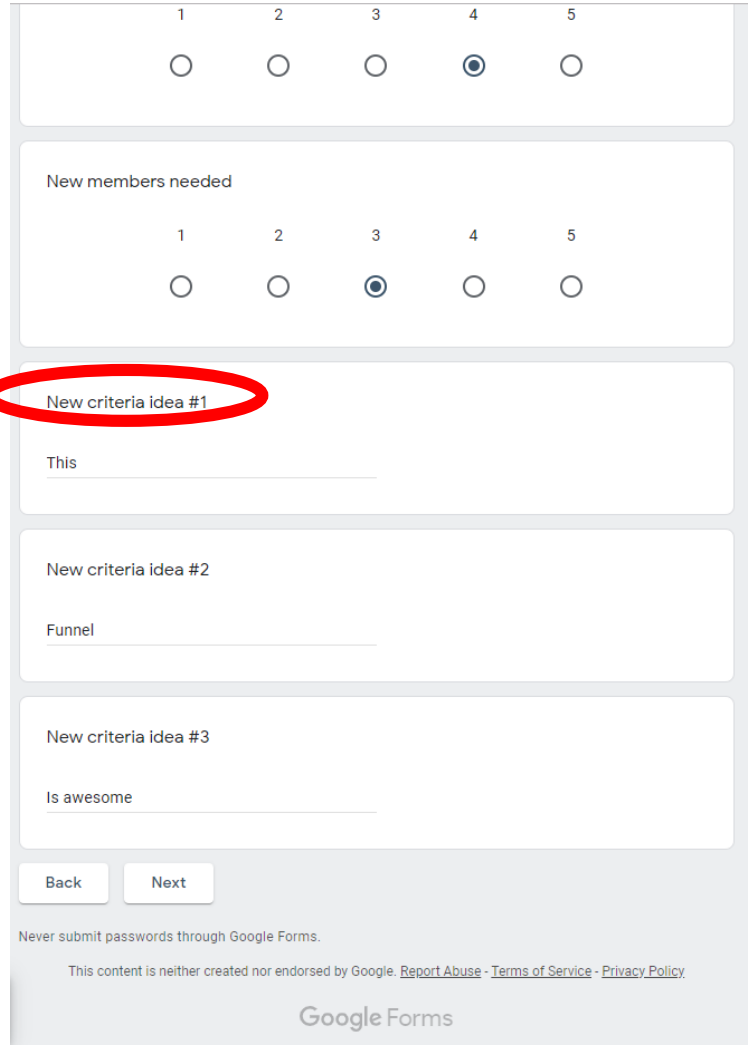
  - *It was possible NOT to vote*
  - *It was only possible to give the ranking 1 to 5*

Your votes and new funnel criteria



Voting

New funnel criteria



Lots of voting and new funnel criteria!

- Funnel criteria gathered in advance for you to vote on:
  - From last meeting on May 6, 2019
  - From 1-on-1 meetings prior to the May 6, 2019 meeting
  - From 1-on-1 meetings prior to this meeting

- You voted on a total of 8 funneling criteria gathered in advance
  - Average score was 3.3 (based on available range from 1 to 5)
  - Highest got 3.6 of 5
  - Lowest got 2.6 of 5

Your ranking of the advance criteria

Ranking	Criteria	Score
1	Return on investment	3,6
2	Scalability	3,6
3	Geography	3,4
4	Time to complete	3,4
5	Skills available to do	3,3
6	Cost of project	3,2
7	Complexity	3,2
8	New members needed	2,6

And 2 new funneling criteria proposed

New criteria proposed (not prioritized)
Strengthen the practical application of academic research into the industry
Sustainability

6. Prioritization

Top 3 projects to work on

Goal

- Get to top 3 project ideas
- Work on these in groups today to flesh them out
- Achieve forward momentum between today and next meeting
  - May, 2020

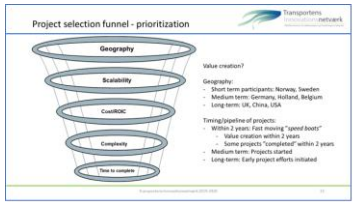
We need to start with the funnel criteria

Ranking	Criteria	Score
1	Return on investment	3,6
2	Scalability	3,6
3	Geography	3,4
4	Time to complete	3,4
5	Skills available to do	3,3
6	Cost of project	3,2
7	Complexity	3,2
8	New members needed	2,6

Top 3

Top 5

7 most relevant



Slide from last meeting

Qualification of project ideas not done

- We lack metrics, data, and information needed to make use of funnel

- We have not worked to describe and qualify the project ideas
  - ➢ Many funnel criteria require upfront qualification and advance work with project ideas

- What can we realistically get done today?

Pragmatic suggestions to move forward

- Pick from ideas available to all in advance of today's meeting only
  - ➢New ideas could be part of similar questionnaire in advance of next meeting
- Use scoring of those who filled in the questionnaire to get to top 10
  - ➢Statistically valid sample (>15 respondents)
- Go for specific projects in the groups today to try to create success
  - ➢More generic project ideas would require further brainstorming

Your top 10 ranking of advance ideas

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10	Green fuels	3,0	Specific	Environmental

Pragmatic suggestions to move forward

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- Leave questionnaire open until end of November
  - Get remaining responses
  - Assemble all new ideas
- Before next meeting
  - Assemble further ideas from groups
  - 1-on-1 meetings would also yield ideas
  - Put together all ideas and do another round of 1-5 prioritization
- As part of next questionnaire, again ask for new ideas (”loop”)
  - We will then get a constantly evolving pool of ideas
  - May wish a criteria (score) to eliminate bottom-feeders (e.g. score <3)

7. Group work

Flesh out the 3 projects in the groups

Group assignments

The objective of this workshop is to qualify your project to be able to determine whether it is worth working on as a group

- **Group 1**: New shipping concept for large new offshore turbines
- **Group 2**: Lack of USA infrastructure for offshore wind
- **Group 3**: Green fuels

The ultimate test of your work will be to what extent you now have enough information to convey the top 5 funnel criteria back to the group

Please nominate:

- Captain
- Time-keeper
- Flip chart paper note taker
- Presenter

Please be ready to:

- Recap the question
- Provide your answer
- Explain your discussions
- Review your findings on the flip-chart
- Answer questions from the group

Please be back at…

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15:00 PM

And have a coffee while you work!

The Groups

- Group #1 (stay here)
  Facilitator: Thomas Poulsen
  Anders F., Anne R. H., Axel M. J., Hans K. J., Jian L., Morten B. N., Lars H., Peter E.
- Group #2 (stay here)
  Facilitator: Morten Basse
  Kirsten B. C., Dorte F., Thomas S. M., Mads P., Thomas Padfield, Feng Z., Jeppe F.
- Group #3 (follow Joris)
  Facilitator: Mikkel Hansen
  Søren S. K., Søren R. P., Christian M. J., Dennis J. P., Knut Magne J., Jørgen L., Joris K.

Group assignments and rooms

- **Group 1**: New shipping concept for large new offshore turbines
- **Group 2**: Lack of USA infrastructure for offshore wind
- **Group 3**: Green fuels

Group 1 – please stay here

Group 2 – please stay here

Group 3 – please follow Joris to room 135 on the other side of hallway

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Presentation of group results

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Flip-chart presentations from the 3 groups

on the walls

8. Next steps

What happens from now until next meeting

(May 2020)

We move forward with the projects

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- 3 projects fleshed out today
  - ➢Were the projects sufficiently relevant to work on?
  - ➢Can we move them forward based on the skills in this room?
  - ➢What will it take in terms of time and money?
  - ➢Do we need to think about funding?
  - ➢Project management and forward movement?

Another ”loop”

- 1-on-1 meetings

- Ideas from today including list of 26 + 15 project ideas
  - Subtract (lowest score) and delete (the projects we are now moving forward)

- Questionnaire before next meeting
  - Advance project ideas
  - Qualification of ideas (ready for funnel)
  - Proposed new ideas

9. Wrap-up

Thank you to Vestas

Date and venue of next meeting (May 2020)

Preparation for after work / ”gå-hjem” meeting

Thank you so far for today to Vestas!

Date suggestion next meeting: Tuesday, May 12, 2020

LM Wind Power

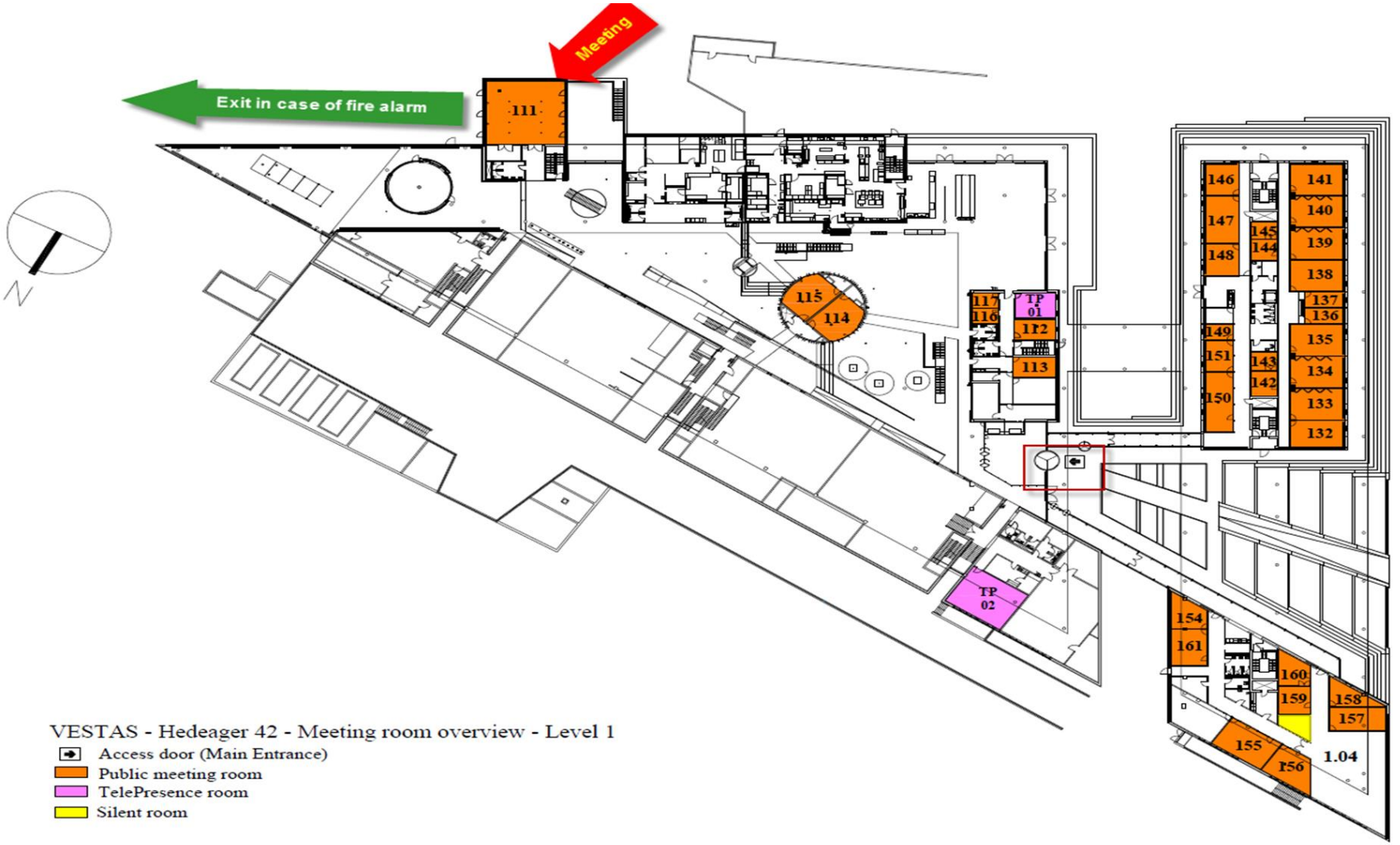
Kolding

Transfer to gå-hjem meeting

Now let us get ready for the gå-hjem meeting / "go-home" after work meeting

<u>ROOM 111 – ABOUT 5 MINUTES WALK</u>

Let us proceed to the after work meeting (111)



Your safety is our concern

No planned fire-drills today

After work meeting is in the other end of the building