Universal foundation concept

A SCM approach to industrialization

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**Background**

The development of the UFC system is initially based on the flexibility and characteristics of the bucket foundation concept as known today. The bucket foundation is a hybrid combining features from the gravitation platform and the mono pile, but with the ability to vary more parameters for penetration depth and dead load than the traditional concepts.

**Bucket foundation principle**

The bucket foundation (B) is a hybrid combining features from the gravitation platform (A) and the mono pile (C).

**Development**

The innovative foundation concept, inspired of the well known offshore technology suction anchors, was initiated by a research program in a joint venture formed by Marcon, Bladt Industries, MBD and Aalborg University.

**Technology**

**Main objectives in the development of the concept**

- **Cost reduction**, reduction of steel consumption, rational production, smaller installation equipment, reduction of load regime.
- **Risk management**, availability of vessels, weather window, seabed condition.

Going from "one off" to industrialized product, optimized design at each position, parameter driven design, standardized construction elements, standardized installation procedures.

**Organization**

The database is containing description of principles, methods, procedures, structures stipulation the operation parameters and cost estimates for each element. The database is also updated with operation project experiences to ensure an efficient feed-back to be used in future projects. The product configuration system is a program defining the application range for each structure and procedure and the rules for combining the different elements to cover the entire wind farm. The system contains a decision support facility with the ability to estimate the involved cost/risk in the different project phases. The documentation facility is based on standard output formats for each of the project phases, feasibility study, conceptual design, tender design, detail design, construction documentation and "as build" documentation.

The UFC / SCM facilitator:

The implementation of the concept is conducted by a facilitator organization with access to the IP-rights of the bucket concept and in close cooperation with the project developer/owner of the wind farm project. The functions of the facilitator are to ensure that the technology, methodologies and procedures is optimized throughout the entire supply chain as well as ensure that the contract relations in-between the different stakeholder is managed to utilize the full potential of the concept.