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Linking product modularity to supply chain integration in the construction and shipbuilding industries

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Modularity is gaining relevance within Engineer-to-Order (ETO) industries such as construction and shipbuilding. So far, however, the concept of modularity does not seem to have fully captured all the facets within these specific industries. Yet, the impact of product modularity on Supply Chain (SC) integration is still an open issue. We investigated the concept of modularity within the ETO industry, by means of an explorative case studies approach. Some observations have allowed us to clarify the meaning of modularity within the ETO industry. Moreover, the relationship between modularity and SC integration has been examined, and a number of contingent variables – e.g. customization, IP awareness, innovativeness, company and product size – have been identified. These variables are able to affect the level of both product modularity and SC integration. The highlighted relations build a basis for further research steps using survey-related instruments.

Highlights:

- Modularity is investigated in the ETO industry by means of explorative case studies.
- The relationship between modularity and SC integration is highlighted.
- Results suggest that SC integration reinforces modules innovativeness.
- Results suggest that customization plays a role in determining modularity and SC integration.
- IP awareness plays a relevant role in steering decisions about product modularity.

Keywords: Modularity, Supply Chain, Construction, Shipbuilding