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# A SEA OF PLASTIC: THE ORCHESTRATION OF A WICKED PROBLEM

**LUISA JANAINA LOPES BARROSO PINTO**
UNIVERSIDADE DE FORTALEZA (UNIFOR)

**PAULO TORRES JÚNIOR**
PROGRAMA DE POS GRADUAÇÃO EM ADMINISTRAÇÃO - PPGA UECE

**FELIPE GERHARD**
UNIVERSIDADE ESTADUAL DO CEARÁ (UECE)

**GABRIELE FERREIRA DA SILVA**
PROGRAMA DE POS GRADUAÇÃO EM ADMINISTRAÇÃO - PPGA UECE

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## Introdução

The presence of plastic debris as anthropogenic material is found in all investigated oceanic environments (TEKMAN et al., 2020), including polar sea ice and snow (PEEKEN et al., 2018), surface and groundwater (CÓZAR et al., 2017), biota (MORGANA et al., 2018), deep-sea sediments (KANHAI et al., 2019), wastewater and beaches (VON FRIESEN et al., 2020). The global Covid-19 pandemic has underscored the indispensable role of plastic in daily life, especially in the health sector and public safety, driving demand for traditionall non-degradable, petroleum-based plastic packaging items.

## Problema de Pesquisa e Objetivo

Within the context of complex environmental issues, such as plastic pollution in oceans, how are actions regarding ocean plastic debris perceived as "wicked problems" by consumers of marine and coastal resources? Is there a well-orchestrated network with orchestrating leaderships to manage this complex issue? This study aims to develop an analytical framework based on Dhanaraj and Parkhe (2006) to assess network orchestration, framing knowledge mobility, appropriability of innovative attitudes, and network stability as a category for governing ocean plastic debris.

## Fundamentação Teórica

Wicked problems are social system challenges with poorly defined formulations, confusing information, conflicting stakeholder values, and unintelligible system-wide consequences. These problems resist easy resolution and are politically judgment-driven rather than scientifically certain (RITTEL; WEBER, 1973). Environmental issues like plastic debris in oceans exemplify wicked problems due to their complexity and diverse perspectives (MCBETH; SHANAHAN, 2004). Orchestration within networks is crucial to address these challenges, facilitating collaborative efforts and resource management.

## Metodologia

This study uses an exploratory qualitative approach, interviewing experts from diverse environmental backgrounds managing oceanic plastic debris. Due to complexity, 27 remote interviews via Google Meet were conducted during Covid-19. Interactionist perspective guided interviews, exploring challenges and solutions. Triangulation integrated data from interviews, site visits, and legislative sessions for a network orchestration model. Analysis followed Miles and Huberman's approach, emphasizing pattern identification and thematic clustering across interviews for framework validation.

## Análise dos Resultados

The study identifies distinct cores in the network addressing oceanic plastic debris: The Institutional Core, involving academics and state officials, shows moderate to high mobility, facilitating knowledge dissemination and policies. The Economic Core exhibits low mobility, hindering industry integration. The Social/Environmental Core has limited orchestration and communication, due to resource constraints. Overall, institutional actors govern effectively, but economic and social/environmental actors face challenges in cohesive orchestration for plastic debris management.

## Conclusão

Addressing plastic debris as a wicked problem requires continuous reevaluation due to its multifaceted nature. The study used Dhanaraj and Parkhe's (2006) "network orchestration" concept

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for analysis. Despite categorization efforts, solutions are slow, lacking systematic sectoral comparison. Governance shows moderate orchestration in the institutional core with mobility but low stability across all cores. Effective governance demands symmetrical social engagement and unified actions to tackle challenges like plastic pollution, requiring robust orchestration for effective outcomes.

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