

1219

1440

1487

1497

1498

1502

VOYAGE OF VIVALDI BROTHERS IN A GALLEY

DEVELOPMENT OF VOLTA DO MAR, EXPLORING THE WEST AFRICAN COAST

BARTOLOMEU DIAS SETS ON HIS JOURNEY

VASCO DE GAMA SETS OFF IN A CARAVEL, WITH A MAGNETIC COMPASS AND ASTROLABE

DIFFICULTIES WITH MUSLIM MERCHANTS IN INDIA

EXERTION OF MILITARY POWER ON THE MUSLIM MARITIME TRADE

Technology and Heterogeneous Engineering:

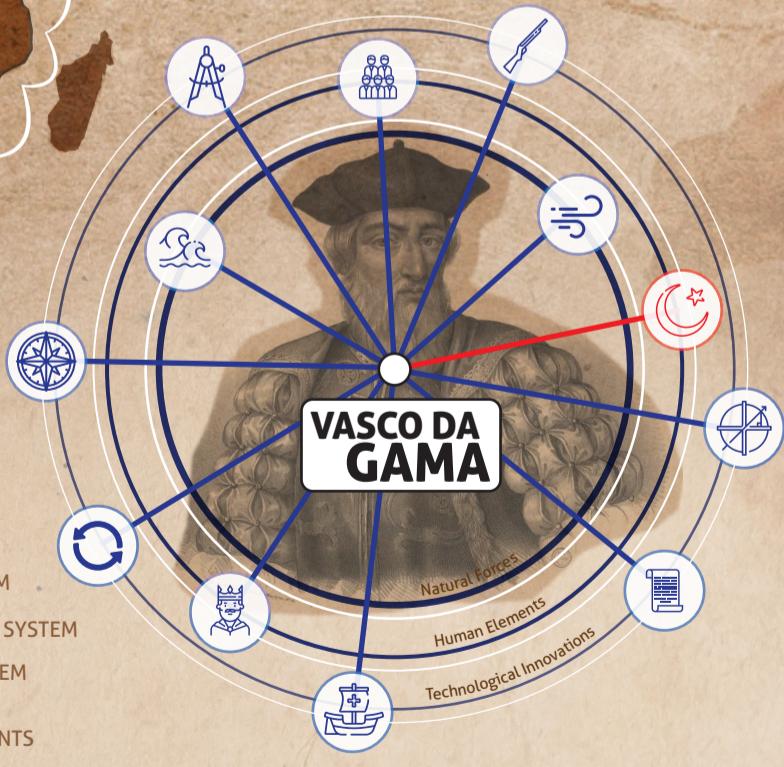
# THE CASE OF PORTUGUESE EXPANSION

“

The stability and form of artifacts should be seen as a function of the interaction of heterogeneous elements as these are shaped and assimilated into a network.

— John Law

”



- FRAGILE SYSTEM
- SEMI RESILIENT SYSTEM
- RESILIENT SYSTEM
- FRAGILE ELEMENTS
- RESILIENT ELEMENTS

CURRENTS  
 WIND  
 VOLTA DO MAR

GALLEY  
 MIXED RIGGED VESSEL  
 CARAVEL

MAGNETIC COMPASS  
 GUNS  
 SPICES

ASTROLABE  
 REGIMENTO  
 QUADRANT

PORTUGUESE KING  
 SAILORS  
 MUSLIM TRADERS