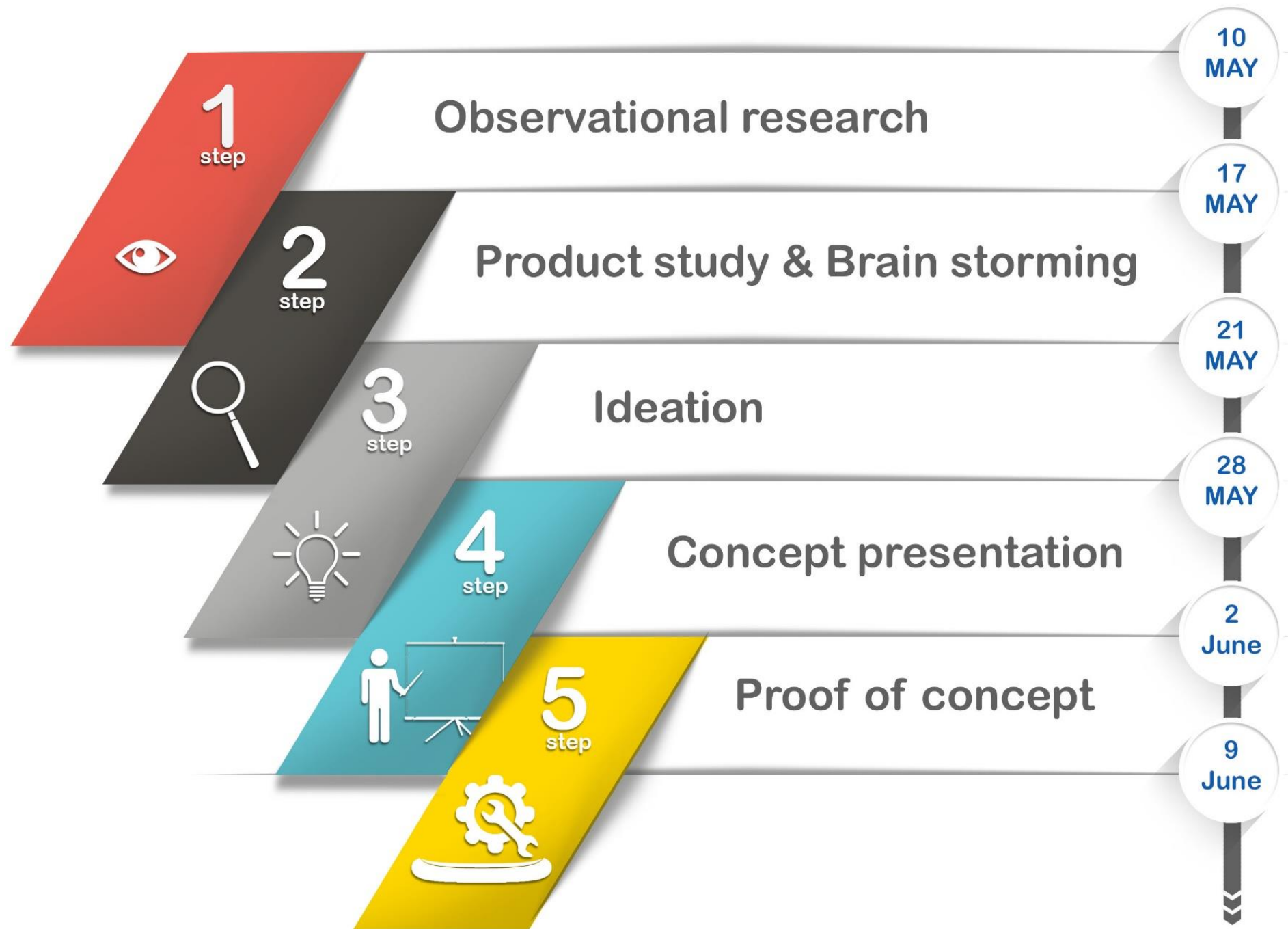
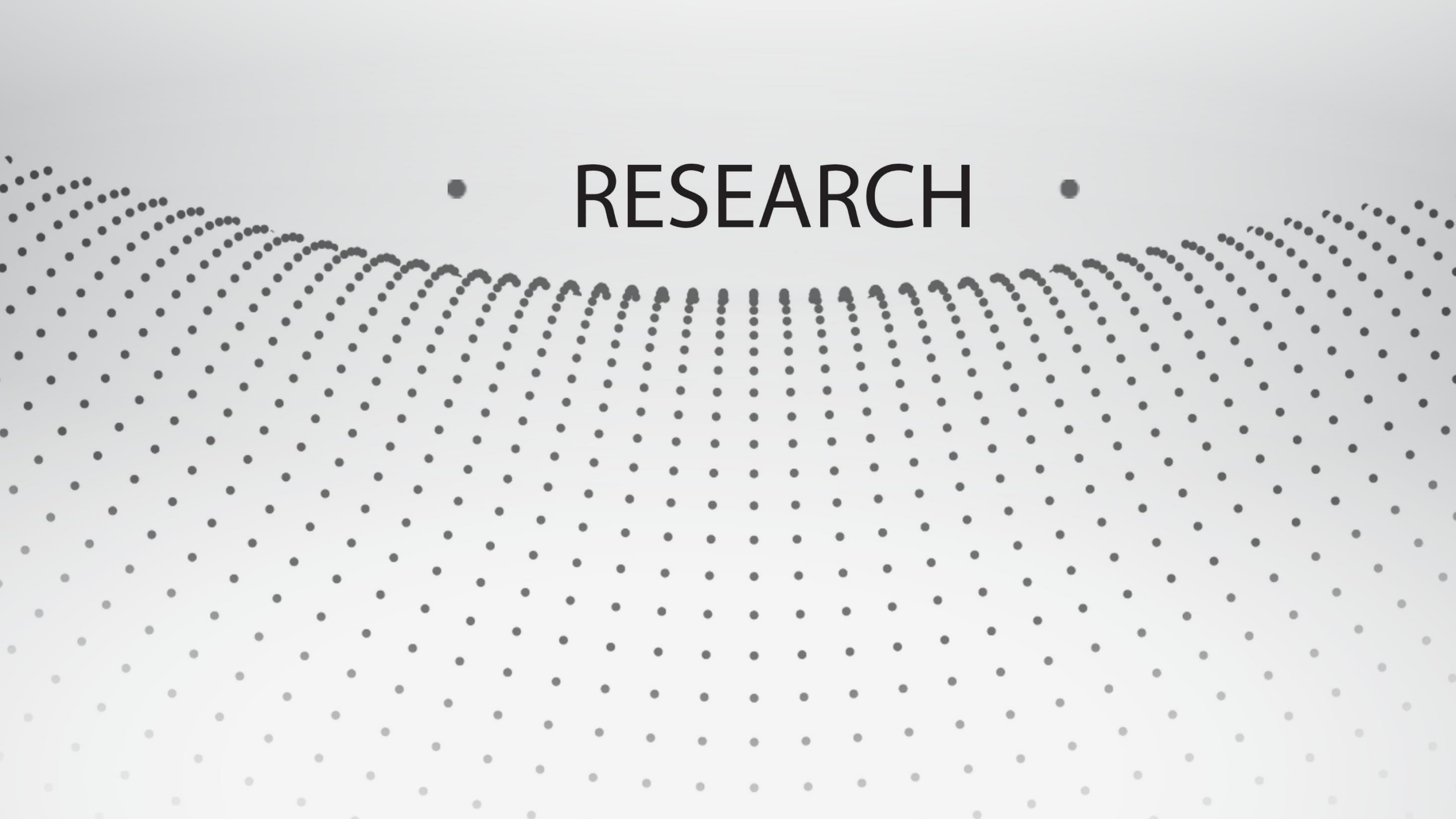




The background features a light gray grid of small dots. A series of dark gray dots forms a wavy line that starts at the top left, peaks, and then continues horizontally across the middle of the image. Two solid dark gray circles are positioned on the horizontal part of this wavy line, one on each side of the word 'RESEARCH'.

RESEARCH

Inland Water Ways

01

The Ganga river
between Allahabad & Haldia

02

Brahmaputra river
between Sadiya & Dhubri

03

The West-Coast Canal in Kerala

04

Godavari & Krishna rivers
between Kakinada & Puducherry

05

East Coast Canal stretch along with
Brahmani and Mahanadi delta river system

Inland navigation waterways of
14,500 km in length

NW-1

NW-2

NW-5

NW-4

NW-3





Kerala had established itself as a major spice trade centre. Keralam had direct contact across the Arabian Sea with all the major Mediterranean and Red Sea ports as well those of the Far East. The spice trade between Keralam and much of the world was one of the main drivers of the world economy.

3000 BC

SPICE TRADE

VASCO DA GAMA

1498

Contact with Europeans after the arrival of Vasco Da Gama in 1498 gave rise to struggles between colonial and native interests.

By 1795, the area was under British dominion

1795

BRITISH COLONY

KERALAM

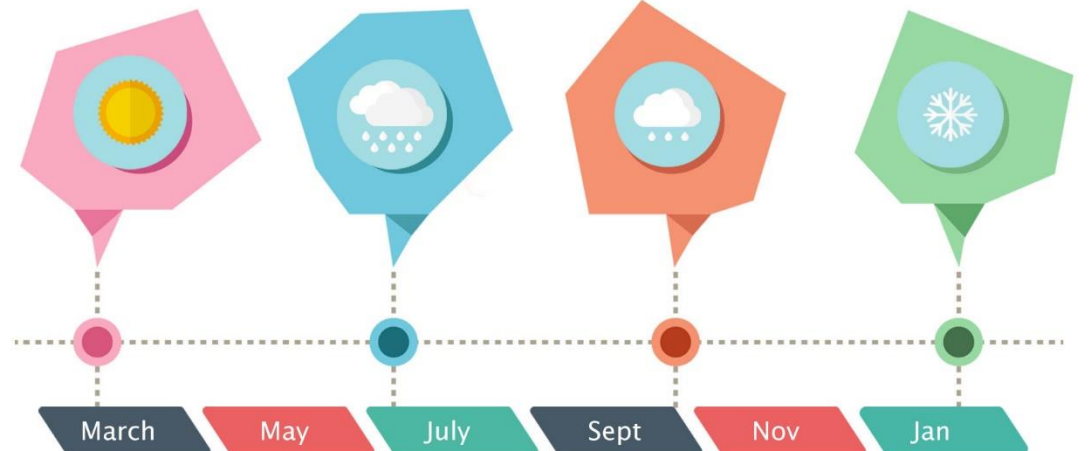
1956

After independence, the state of Keralam was created in 1956 from the former state of Travancore-Cochin, the Malabar district of Madras State, and the Kasaragod taluk of Dakshina Kannada.

The West Coast Canal or National Waterway No 3 is a 168-km stretch of this inland navigational route located in Kerala, India and runs from Kollam to Kottapuram and was declared a National Waterway in 1993.

1993

NATIONAL WATERWAY



WHY TOURISM MATTERS ?



8.6% CONTRIBUTION OF
TOURISM IN **GDP**



12 Lakhs NEW JOBS
IN INDIA



180 Lakhs DOMESTIC TOURIST
BY 2021



30 Lakhs FOREIGN TOURIST
ARRIVAL BY 2021



BACKWATER TOURISM & AYURVEDA
EMERGED AS THE INNOVATION OF TOURISM





Spending
₹15000/person



Spending
₹70000/person



1 out of 10 tourist is foreigner



25% foreign exchange earning come from tourism

TRAVEL MOTIVE

1



EXPLORE

3

ADVENTURE



2



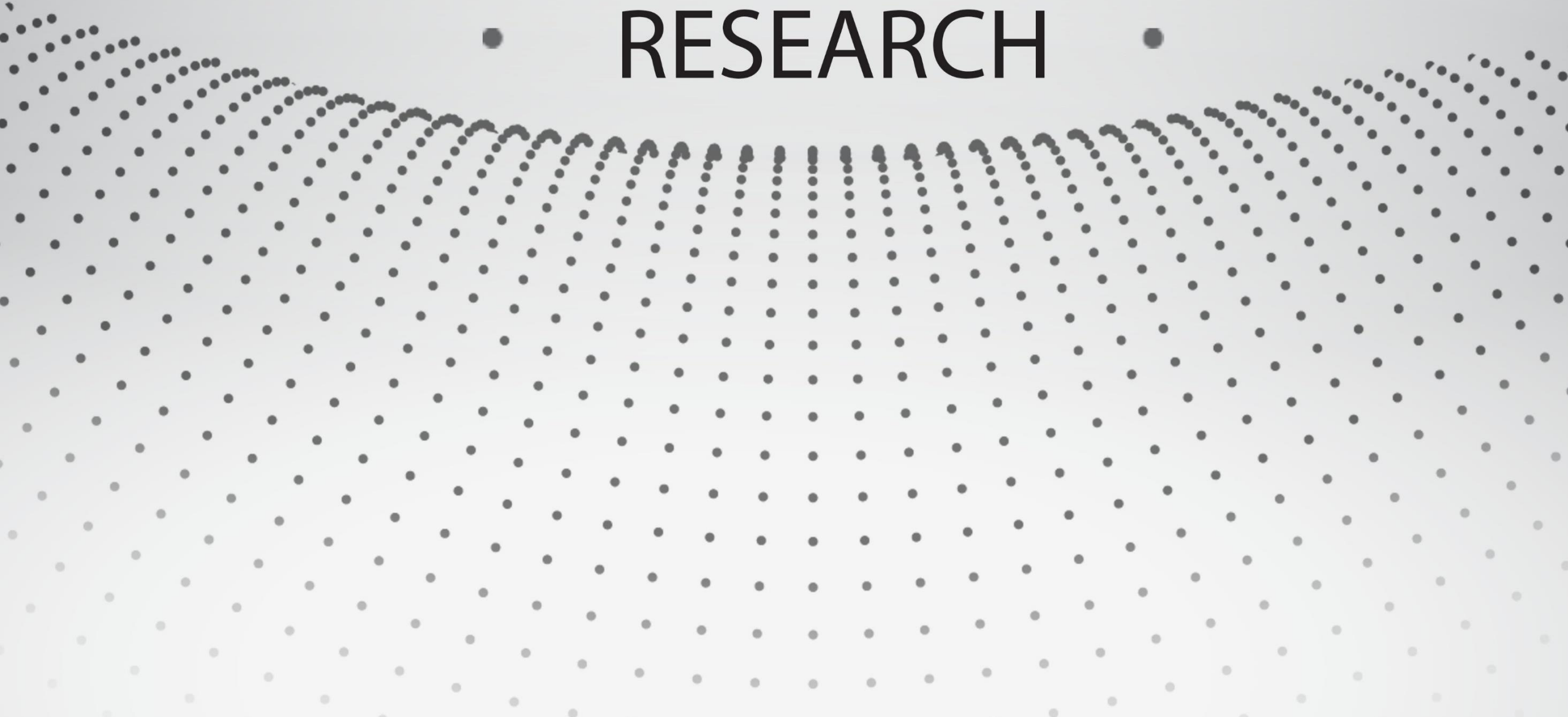
FUN

4

BREAK AWAY
FROM ROUTINE



OBSERVATIONAL RESEARCH



CANOE HAS SMALL
FREEBOARD DISTANCE

VERY FEW CANOES OBSERVED WITH
WEATHER PROTECTION ACCESSORIES

CANOES ARE MODIFIED AS
ENGINE POWERED CANOE



CANOE IS UTILISED TO
TRANSPORT **LIGHT GOODS**

MAJORITY OF THE CANOES
ARE **PEDAL POWERED**

MOSTLY OPERATED IN
NARROW CHANNELS

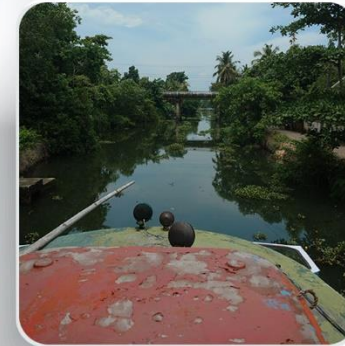
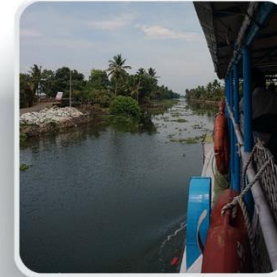
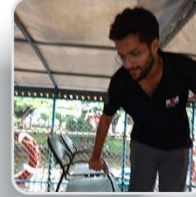
SHIKHAR
HOULI
HAS A
CAPA
SHAL
CRUI
ENGI
IT CO
OR O
SH



HOP ON HOP OFF

HOP ON HOP OFF IS
EUROPEAN CONCEPT. IN
KERALA SPICE ROUTE IS
EXPLORE THROUGH THIS
SERVICE. HERE SHIP IS
EQUIPED WITH
OUTBOARD ENGINE
& CLOSE CABIN.
BOATS DRIVE ACROSS
MONUMENTS
OF SPICEROUTE

HOP ON HOP OFF IS EUROPEAN CONCEPT. IN KERALA SPICE ROUTE IS EXPLORE THROUGH THIS SERVICE. HERE SHIP IS EQUIPED WITH OUTBOARD ENGINE & CLOSE CABIN. BOATS DRIVE ACROSS MONUMENTS OF SPICEROUTE



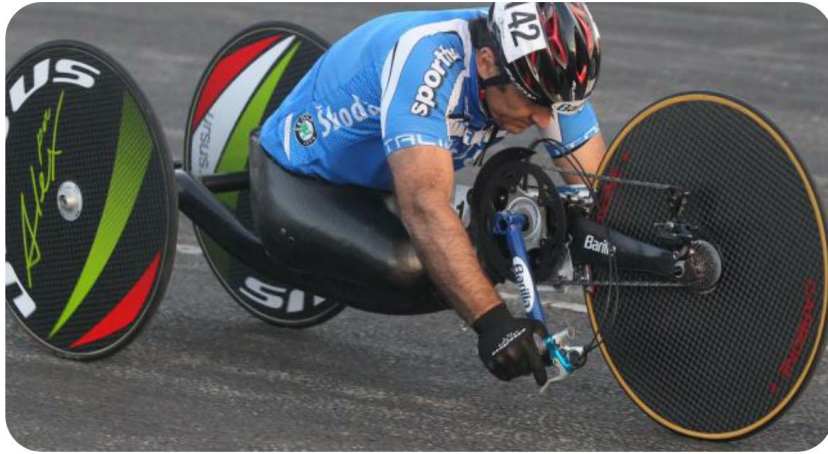


Benchmarking



Human Powered Sports

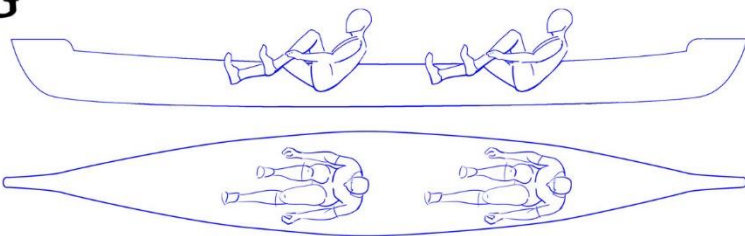




Human Powered Mechanism



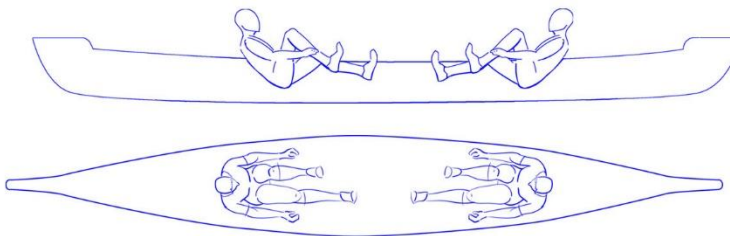
PEDALING
 SAME DIRECTION
 COMFORTABLE
 MOVING
FORWARD
 SAFE



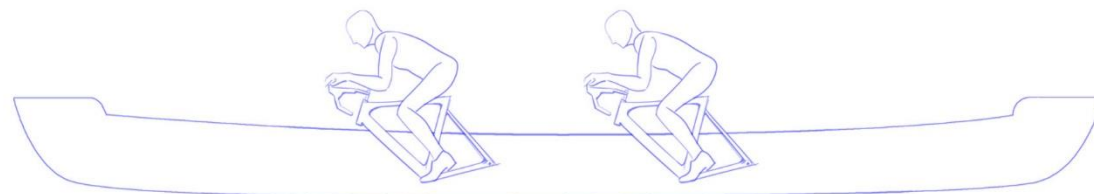
LITTLE
 COMMUNICATION
 CLICHE



INTERACTIVE
 DIRECTIONLESS
SYMMETRY



EXERCISE UNSTABLE
 CONSCIOUS
 SPORTY RESTLESS **TOPPLE**



ANTISOCIAL
 DIRECTIONLESS
 BORING
 AUDIO
COMMUNICATION



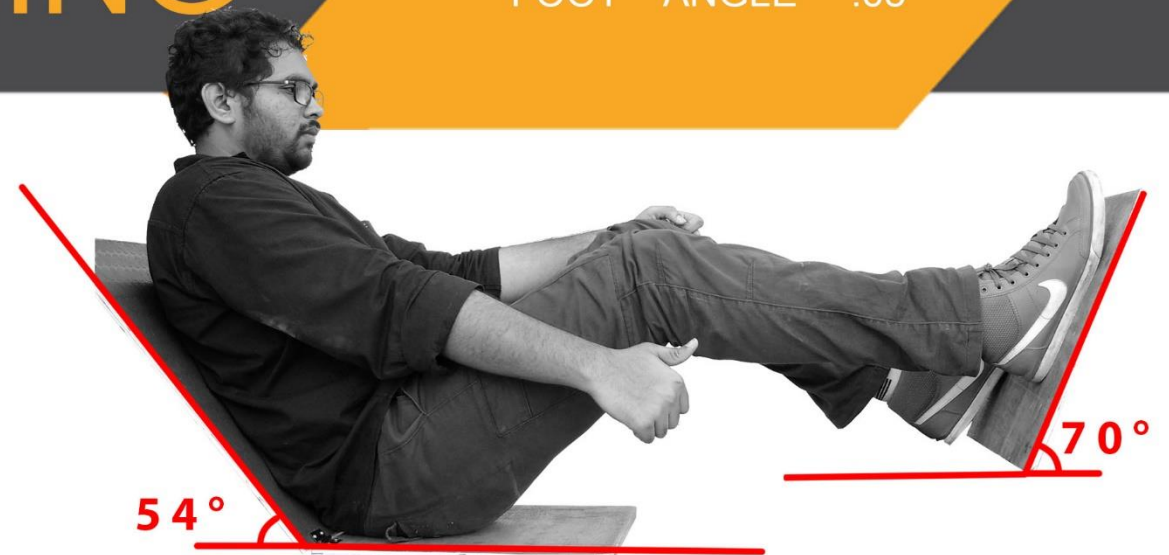
SITTING LAYOUT

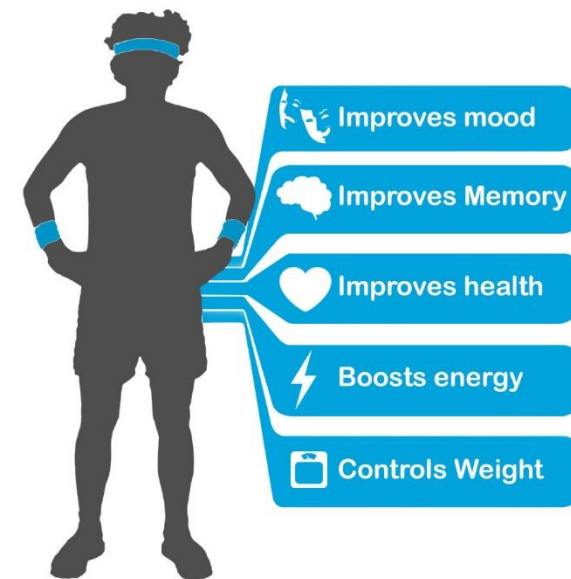


BODY STORMING

BACK ANGLE : 50.25°

FOOT ANGLE : 68°



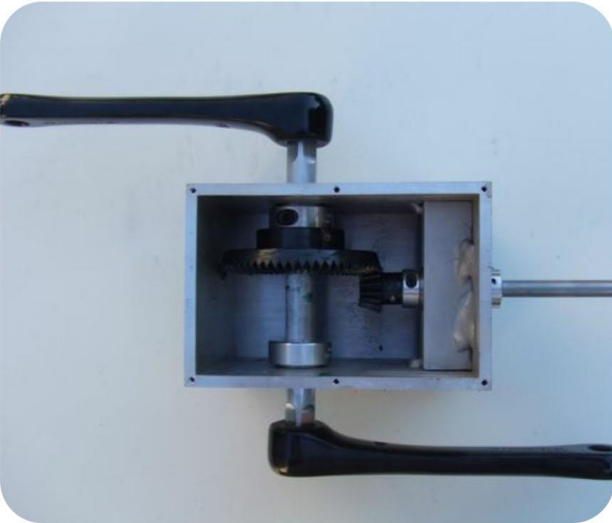
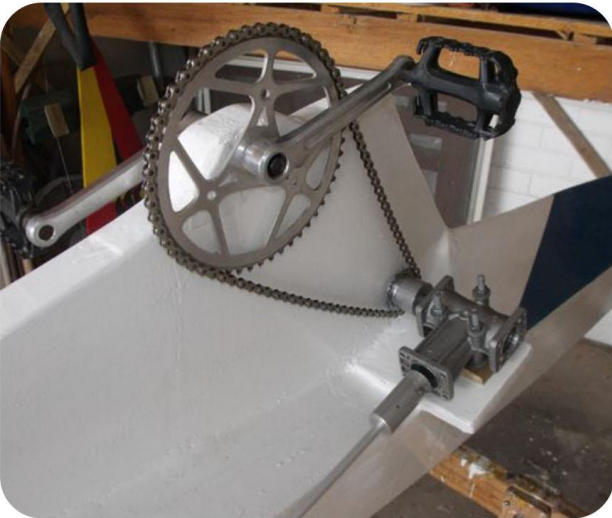
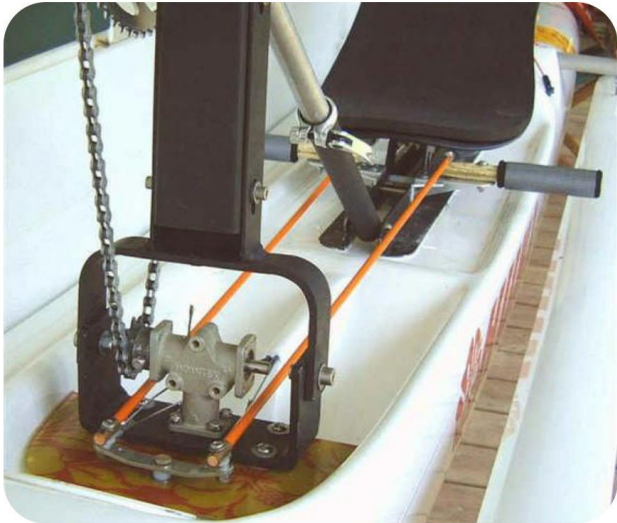


BEING PHYSICALLY ACTIVE
REDUCES CHANCES OF
CHRONIC DISEASES BY

50%







BACKWATER FEATURES

01 WATER HYACINTH

This plant grows under water and cover water surface.
Water hyacinth is seasonal plant, found in rainy season.

01

02 SALINE WATER

Kerala backwater is connected with sea. So that water is more saline. Saline water cause more corrosion of metal components.

02

03 TIDAL VARIATION

Due to connection with sea water level often changes with tidal variation.

03

04

05 6 MONTHS OF RAIN

Boat operation in rainy season is critical.

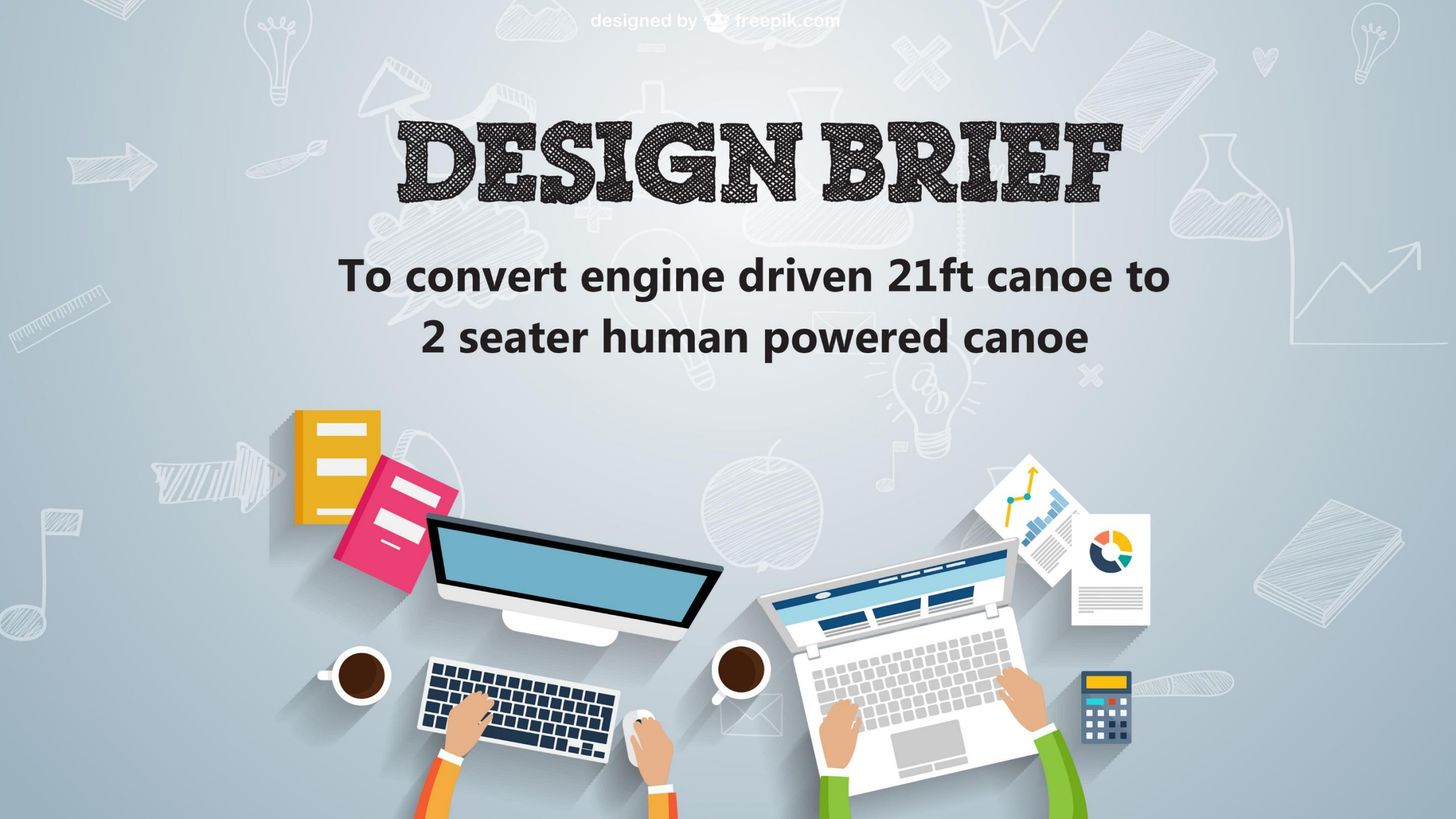
05

SHALLOW WATER

Average backwater depth is approximately 2 meter.



To convert engine driven 21ft canoe to 2 seater human powered canoe



Product study





INGRESS

EGRESS

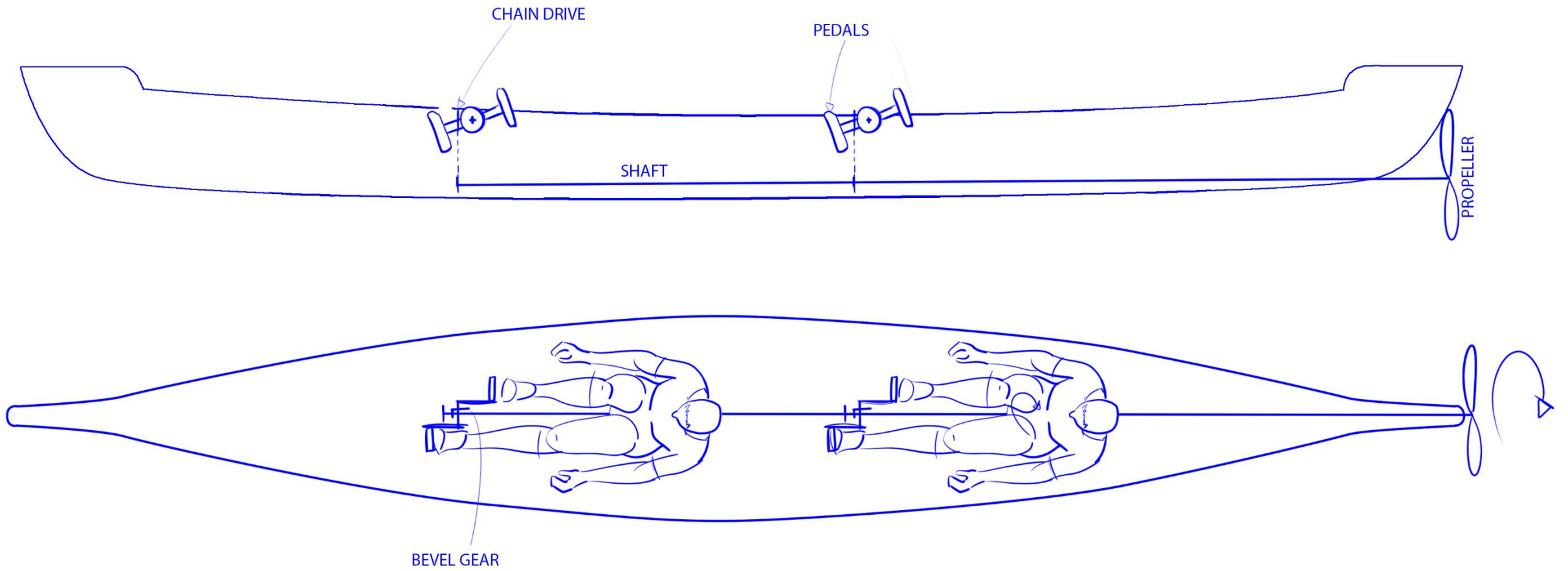






IDEATION





Mechanism is
hidden

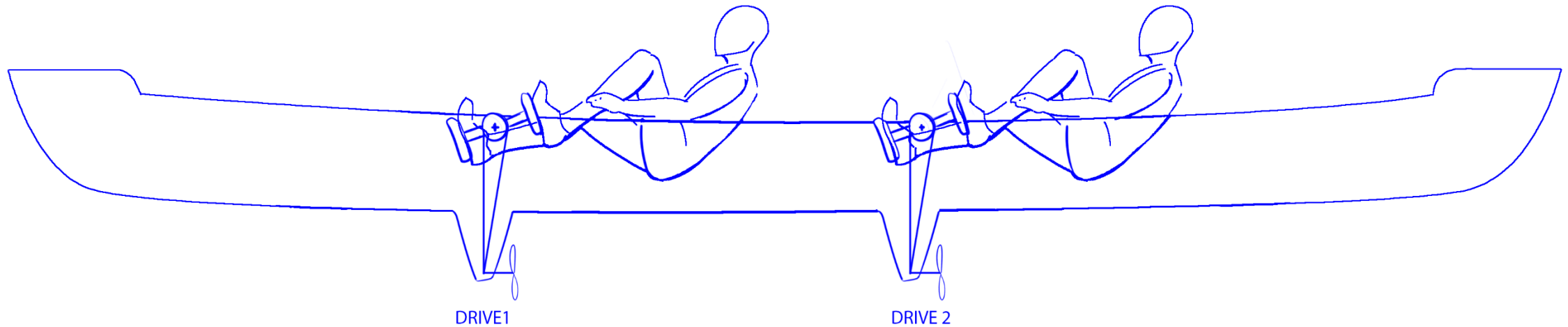
More deck
Space

Clean look

Simple
Mechanism

Reverse
pedaling

May catch
Water hyacinth



Mechanism is hidden

Belt takes less space

Clean look

BEVEL GEAR BOX

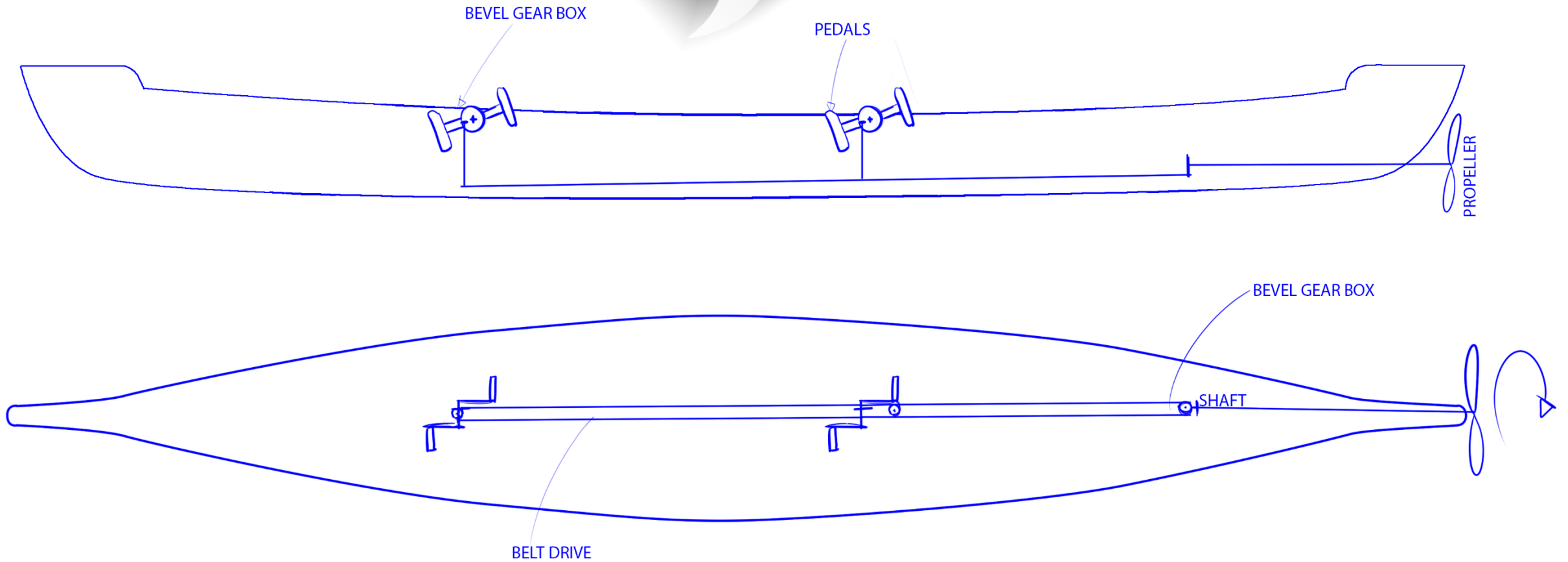
PEDALS

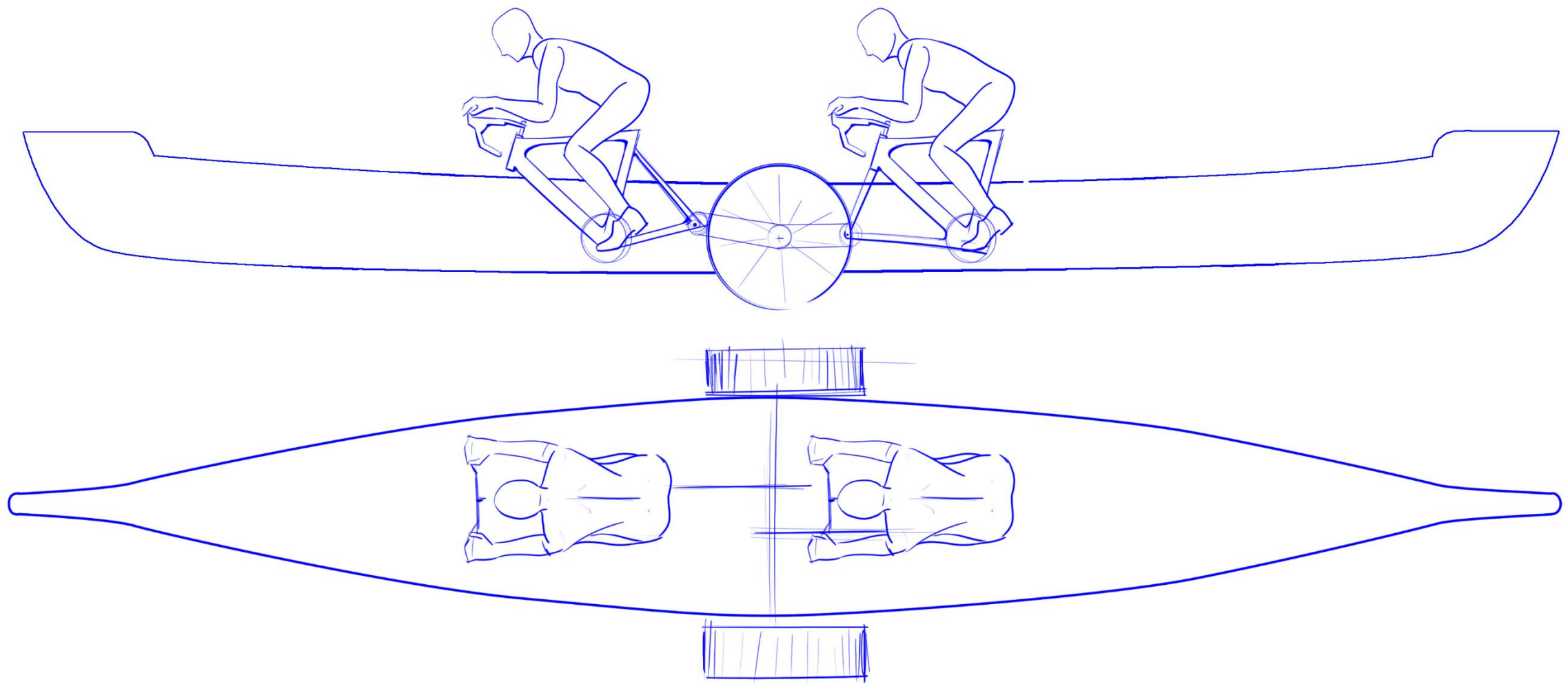
PROPELLER

BEVEL GEAR BOX

SHAFT

BELT DRIVE





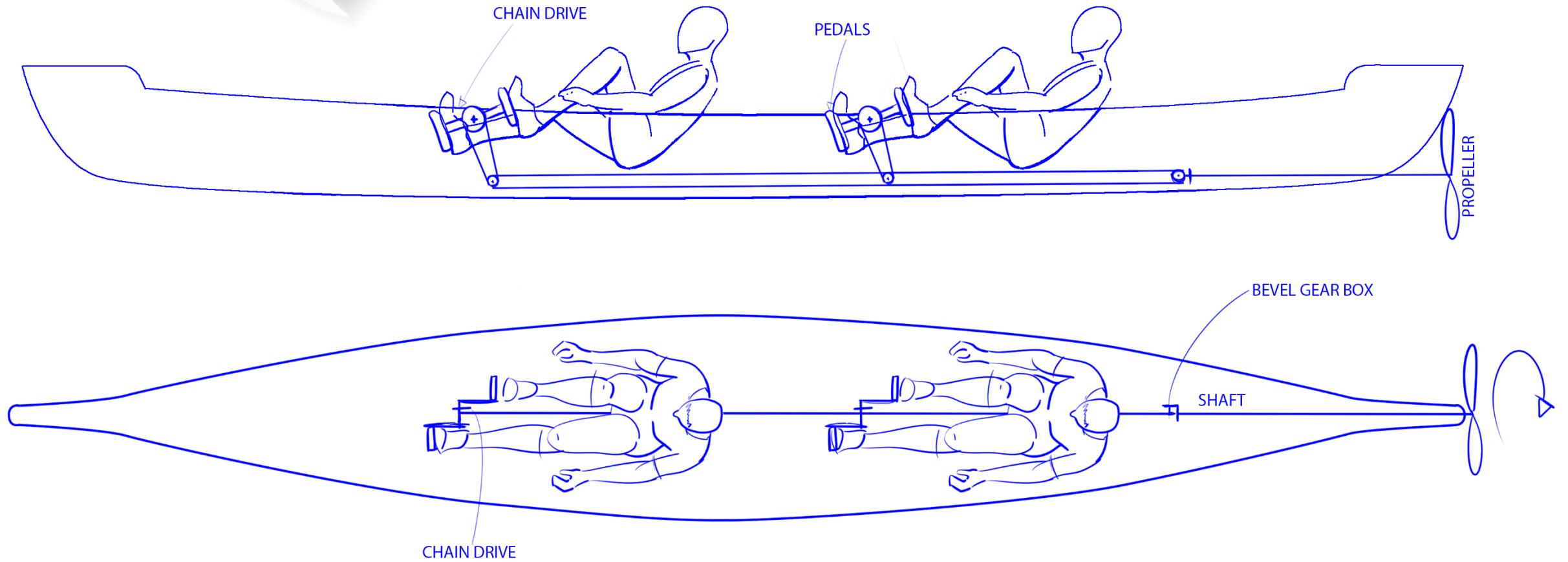
Flashy
appearance

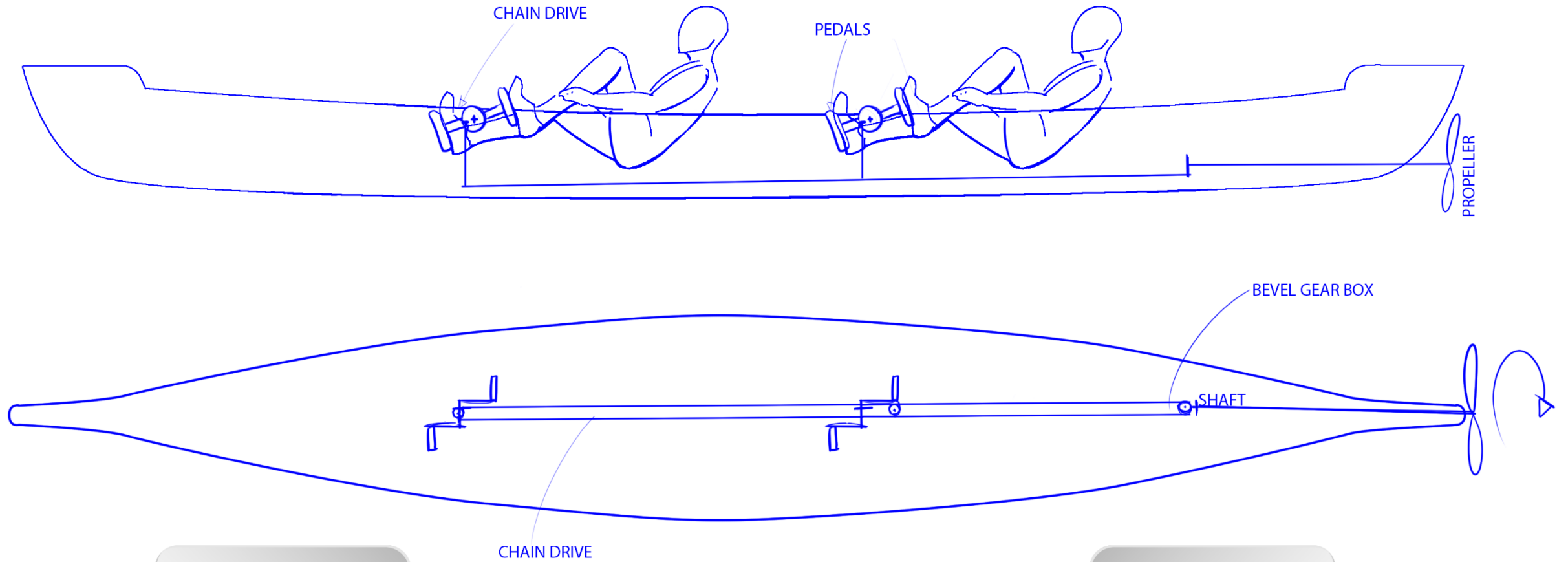
Reverse
pedaling

May topple up

Higher seating

Mechanism is hidden

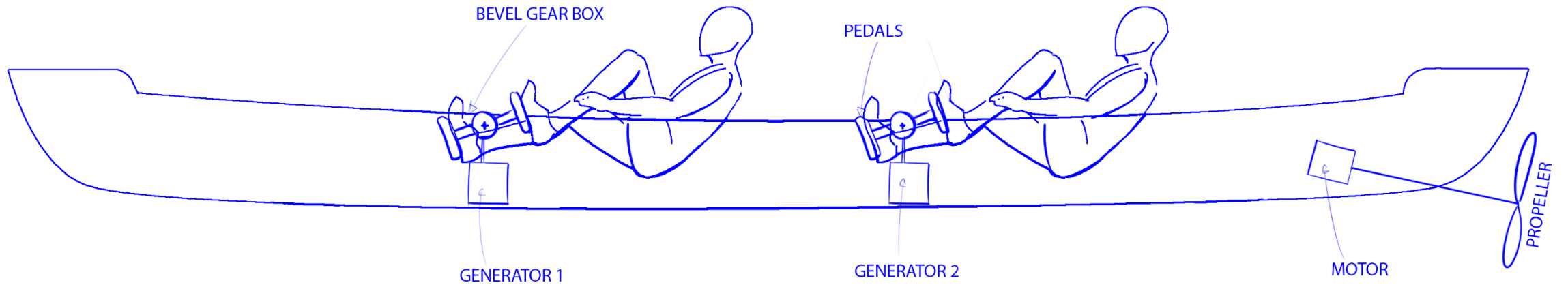




Mechanism is
hidden

Belt takes
less space

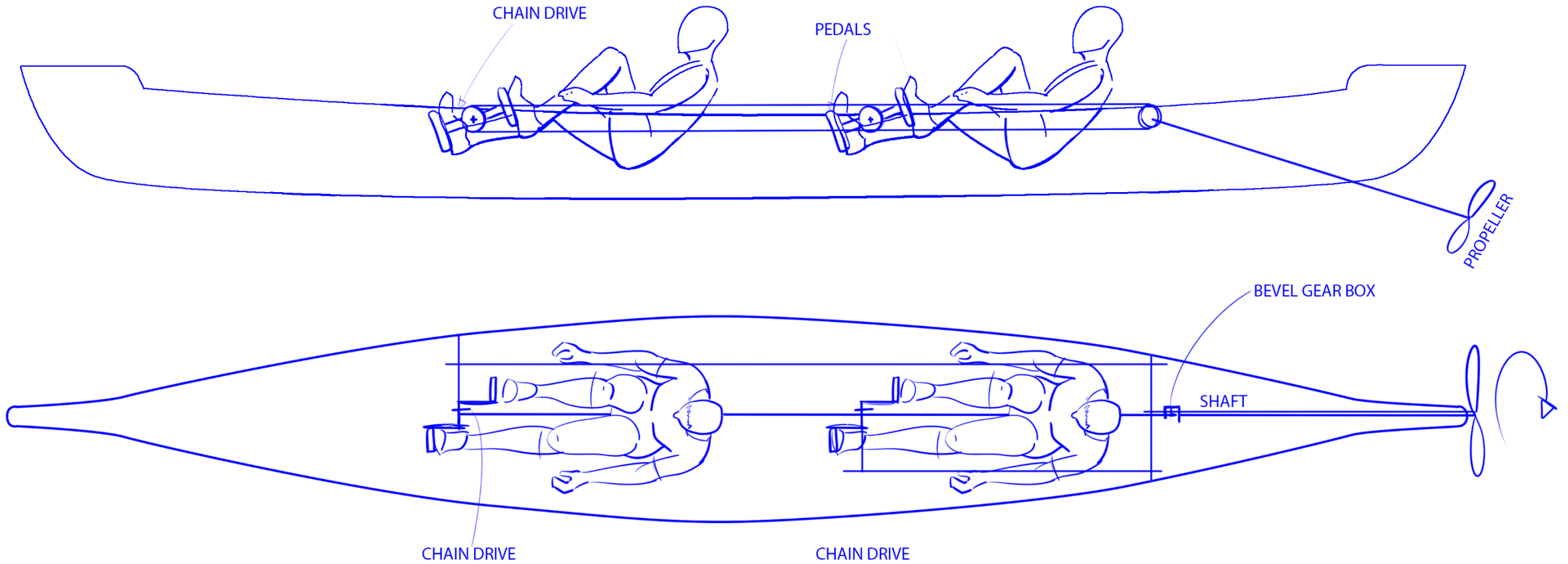
Clean look



Takes minimum
space

Individual
Contribution

65% efficiency



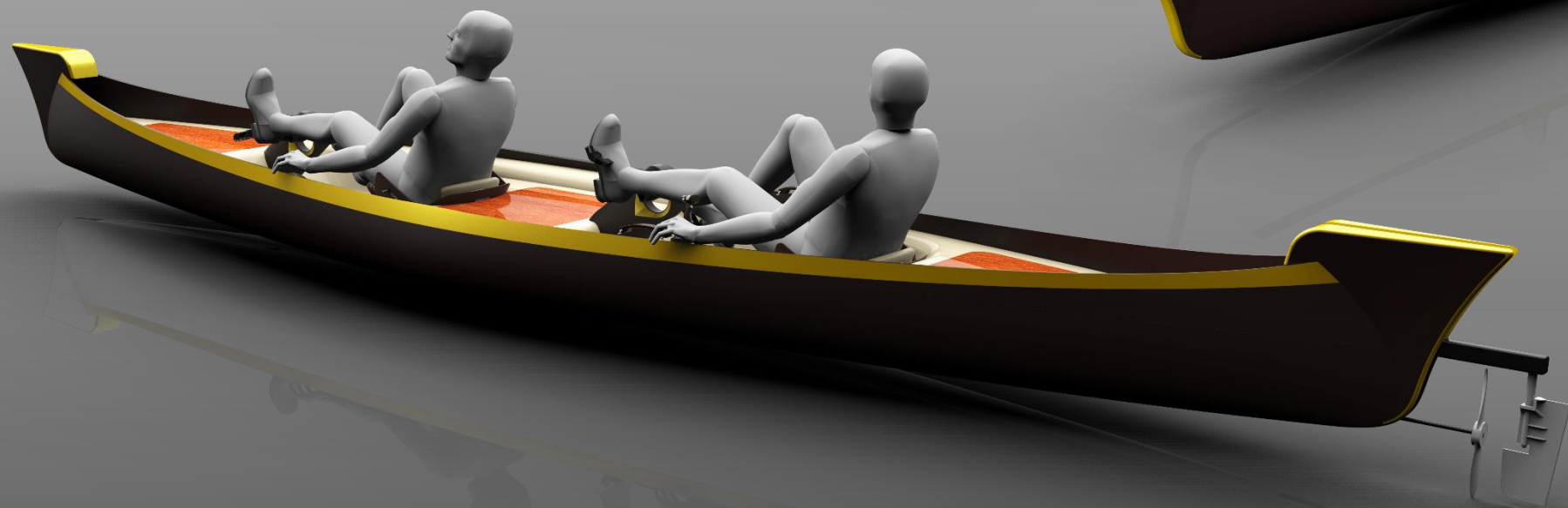
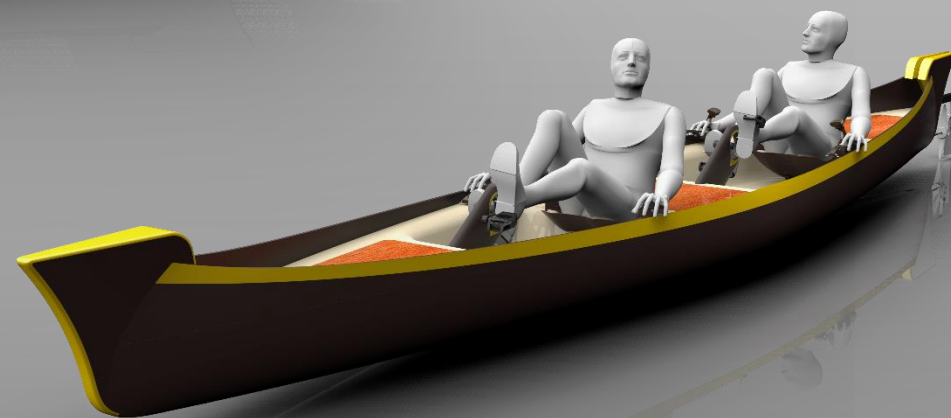
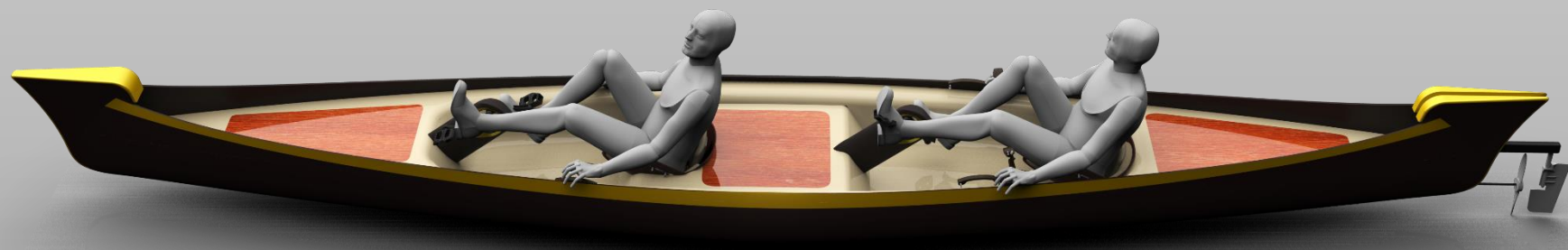
Simple
Mechanism

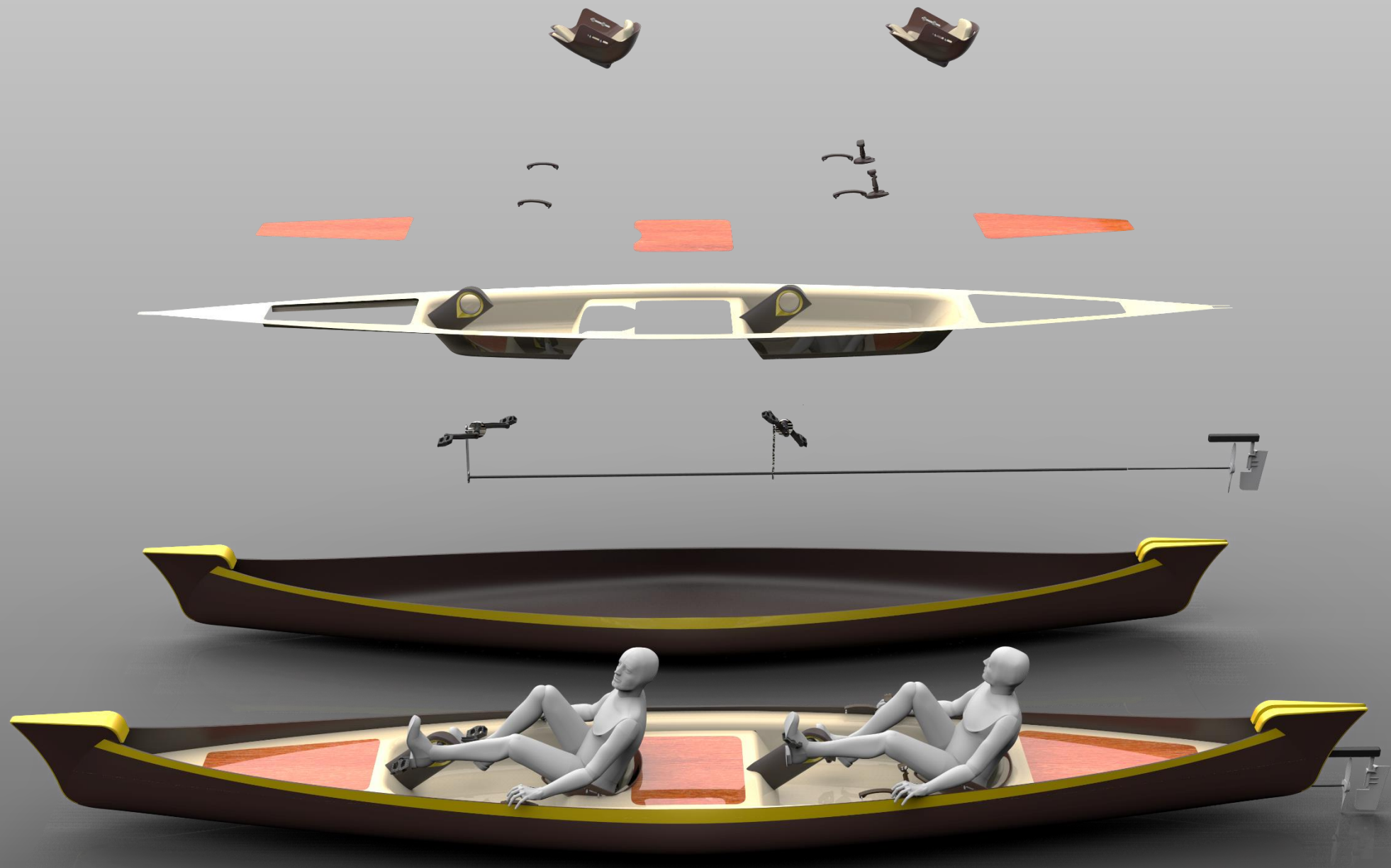
Easy
maintenance

Busy overall
look

Less deck
space

CONCEPTS





PROOF OF CONCEPT

