

DGLR Workshop X

Lufffahrzeuge leichter als Luft

*Leichtbau im Rahmen der
leichter-als-Luft-Technologie*

15./ 16. Juni 2007
TU München

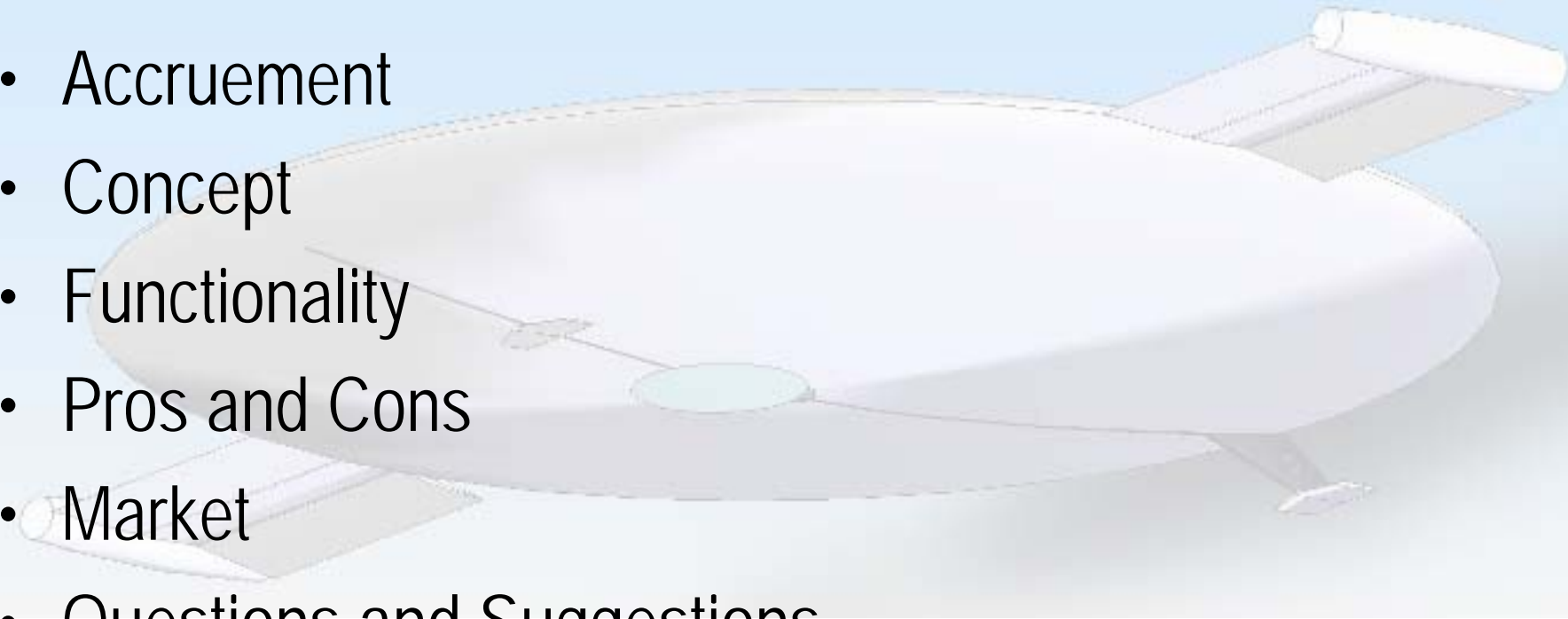
Differently-Minded Flying

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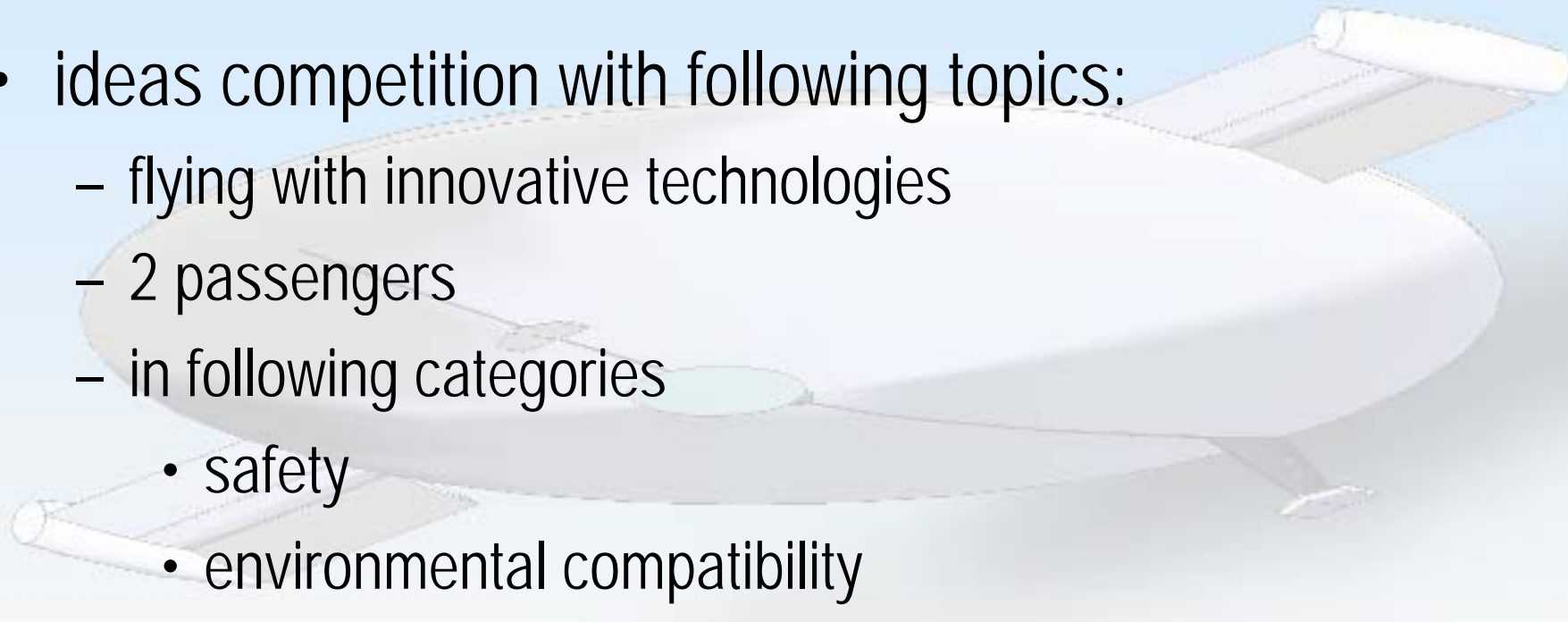
Contents

- Accruement
- Concept
- Functionality
- Pros and Cons
- Market
- Questions and Suggestions



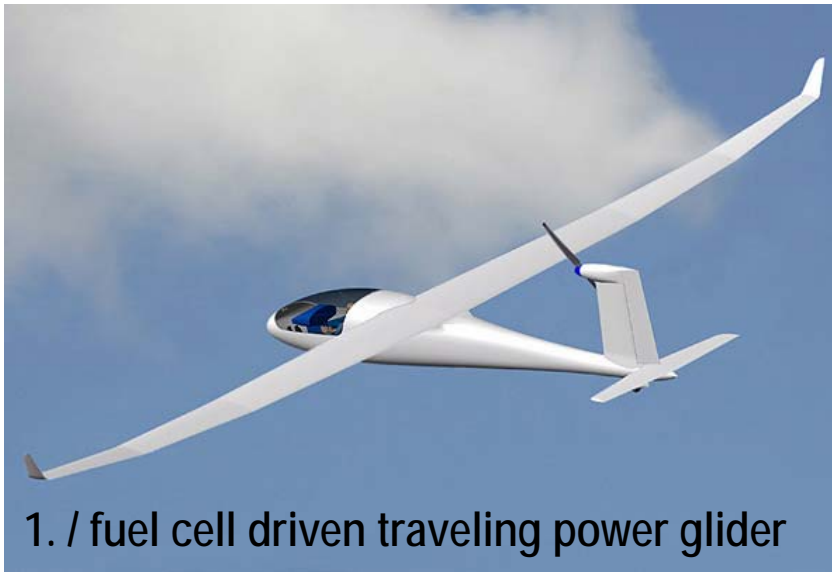
Participance / Berblinger-Award 2006

- ideas competition with following topics:
 - flying with innovative technologies
 - 2 passengers
 - in following categories
 - safety
 - environmental compatibility
 - aerodynamics
 - method of construction
 - economy



Participance / Berblinger-Award 2006

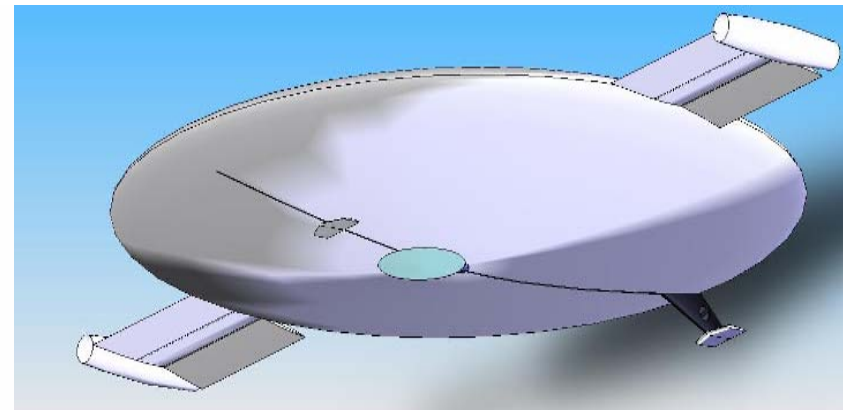
- flying with innovative technologies
- the winner:



- 21 participants

Participance / Innovation-Award 2006

- topic 2006:
 - How looks traffic in future?
 - How can we meet global challenges of commodity flow?
- the winner:



1. / paraglider driven cargo ship

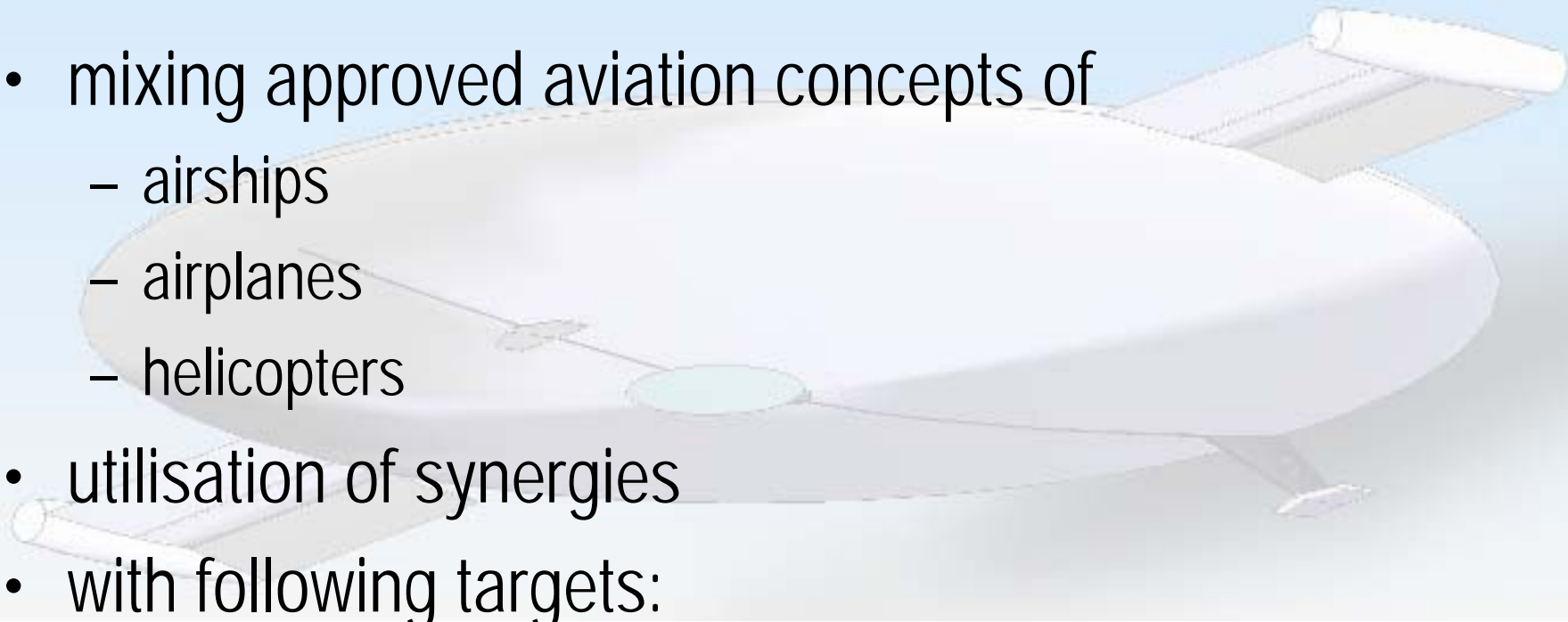
2. / flywheel concept

3. / vtol hybrid airplane

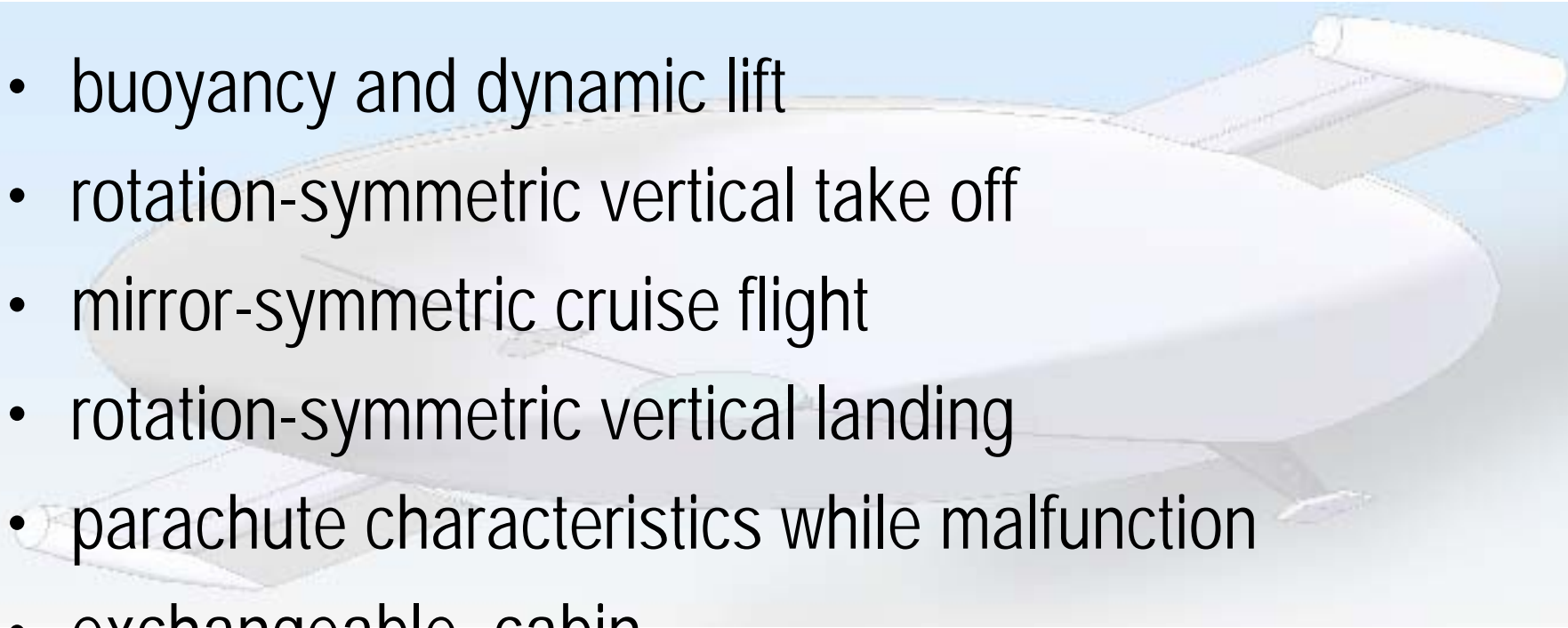
- more than 1000 participants

Concept

- mixing approved aviation concepts of
 - airships
 - airplanes
 - helicopters
- utilisation of synergies
- with following targets:
 - elimination of disadvantages
 - usage of advantages



Functionality

- buoyancy and dynamic lift
 - rotation-symmetric vertical take off
 - mirror-symmetric cruise flight
 - rotation-symmetric vertical landing
 - parachute characteristics while malfunction
 - exchangeable cabin
- 

Functionality

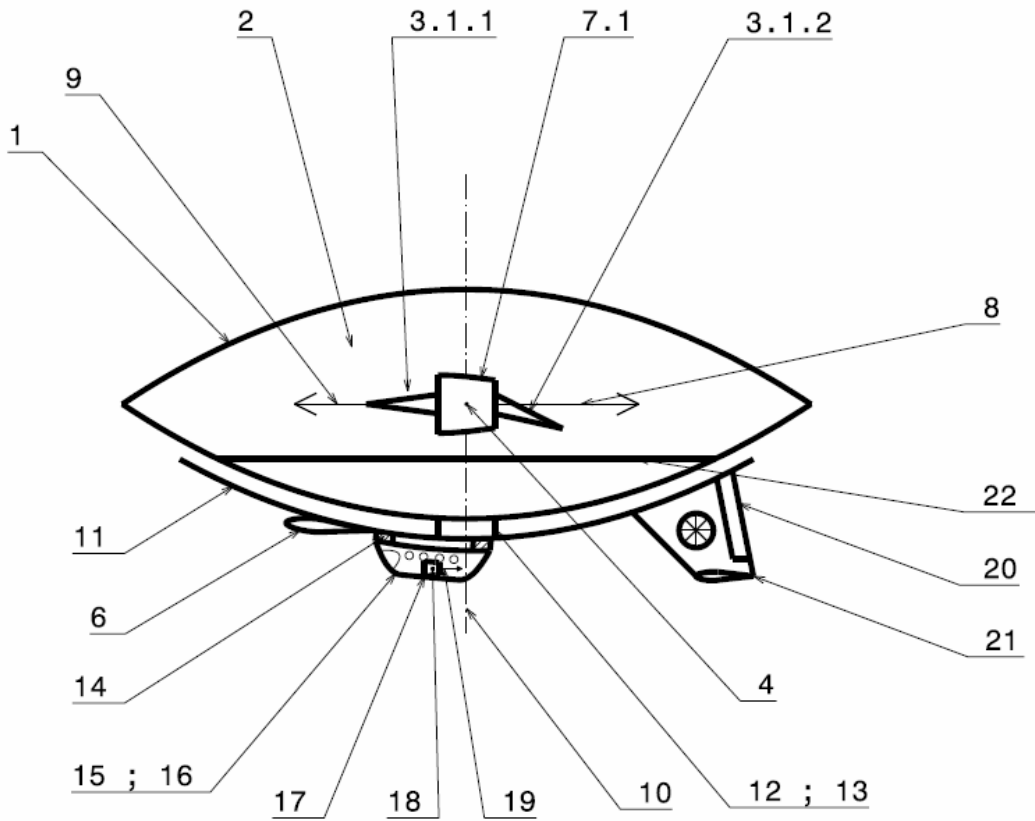
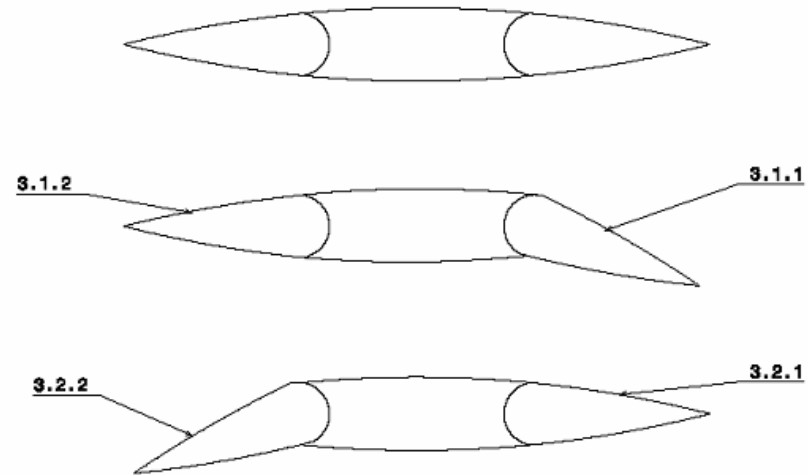


Fig. 1.2

Fig. 2



Index

1	Shell	15	Cabin
1.1	Gas-Cell-Construction	16	Power Supply
1.2	Blower	17	Optional Engine 1
1.3	Carbon-Fiber-Ring	18	Axis of Rotation (optional engines)
2	Volume	19	Thrust Vector (optional engines)
3.1	Wing 1	20	Vertical Tail
3.2	Wing 2	21	Horizontal Tail
3.1.1	Front Tab	22	Horizontal Plane
3.2.2	Back Tab	23	Emergency Parachute
4	Axis of Rotation (wing)	24	Forward Direction (shell)
5	Rotatable-Mechanism	25	Global Direction (cabin)
6	Canard	26	Direction of Rotation (shell)
7.1	Main Engine 1		
7.2	Main Engine 2		
8	Thrust Vector (main engines)		
9	Direction of Zero Lift (neutral wing position)		
10	Axis of Rotation (shell)		
11	Bar		
12	Rotating Support (at 10)		
13	Sliding Contact		
14	Bearing (gliding / rolling)		

For purposes of clarity in figure 1.1 the components 17, 18 and 19, are shown 90° rotated around the axis 10! The thrust vectors 19 are always inside parallel planes concerning the plane of the bar. Using the Fenestron-Technology 17+, the heavy optional engines can be saved up.



low budget demonstration experiment

please use following link

http://www.youtube.com/watch?v=gmUcpEJys_Y



www.Hybrid-Airplane.com


Comparison with approved Concepts

	Size	Pollution	Capacity	Speed	Range	Security	Infrastructure
Aircraft							
HTOL	medium	high	medium / high	high	high	high	runway
VTOL	medium	high	low	high	high	low	no demand
Helicopter	small	medium / high	low	medium	low	medium	no demand
Airship	large	medium	high	slow	medium / high	medium	ground-crew
Train	long	low	high	medium	high	high	rails
Vehicle	small	medium	low / medium	medium	low / medium	medium	road
Ship	large	medium / high	high	slow	high	high	harbour
VTOL Hybrid-Airplane	medium / large	low	high	medium / high	medium / high	high	no demand

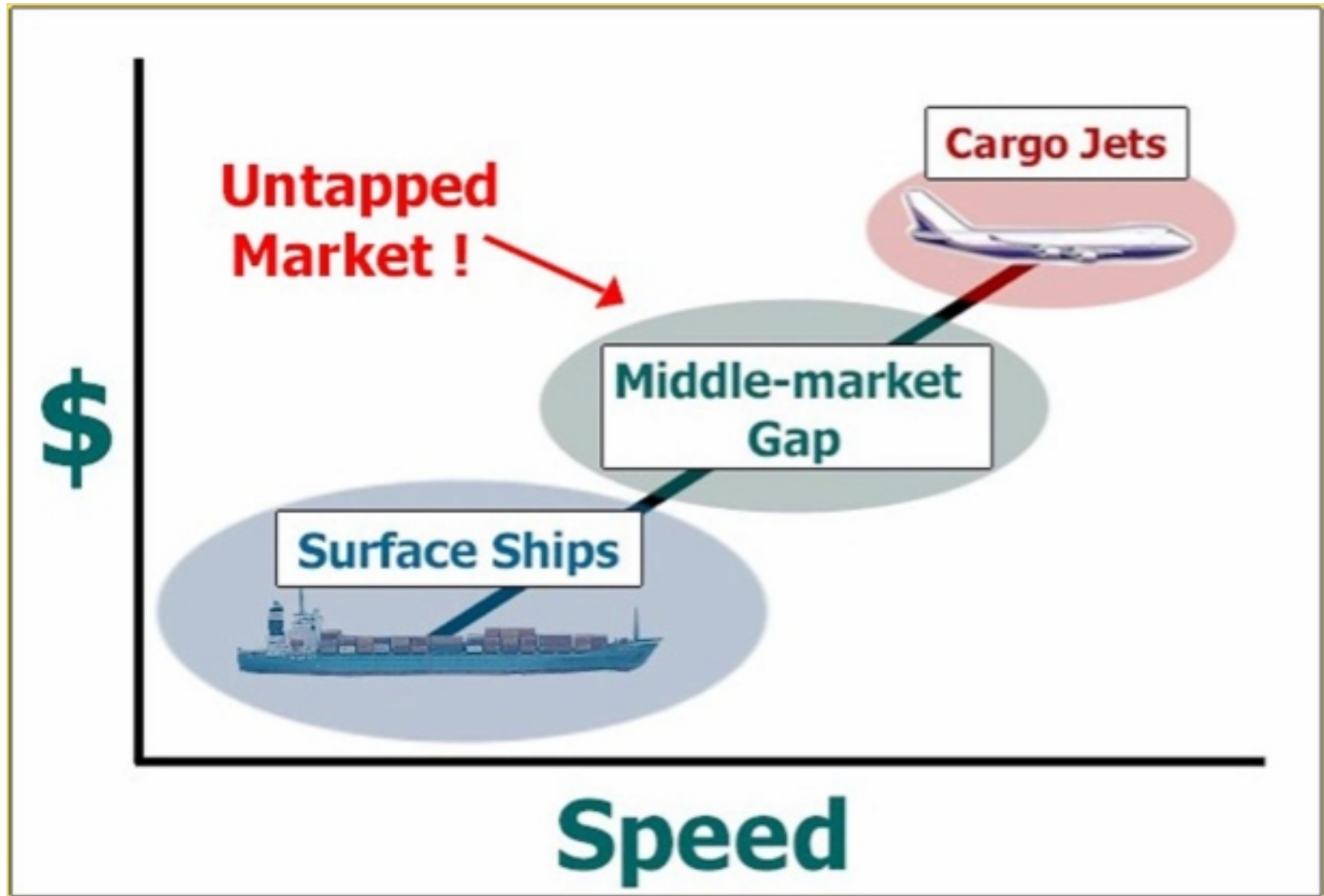
advantage

disadvantage

Advantages

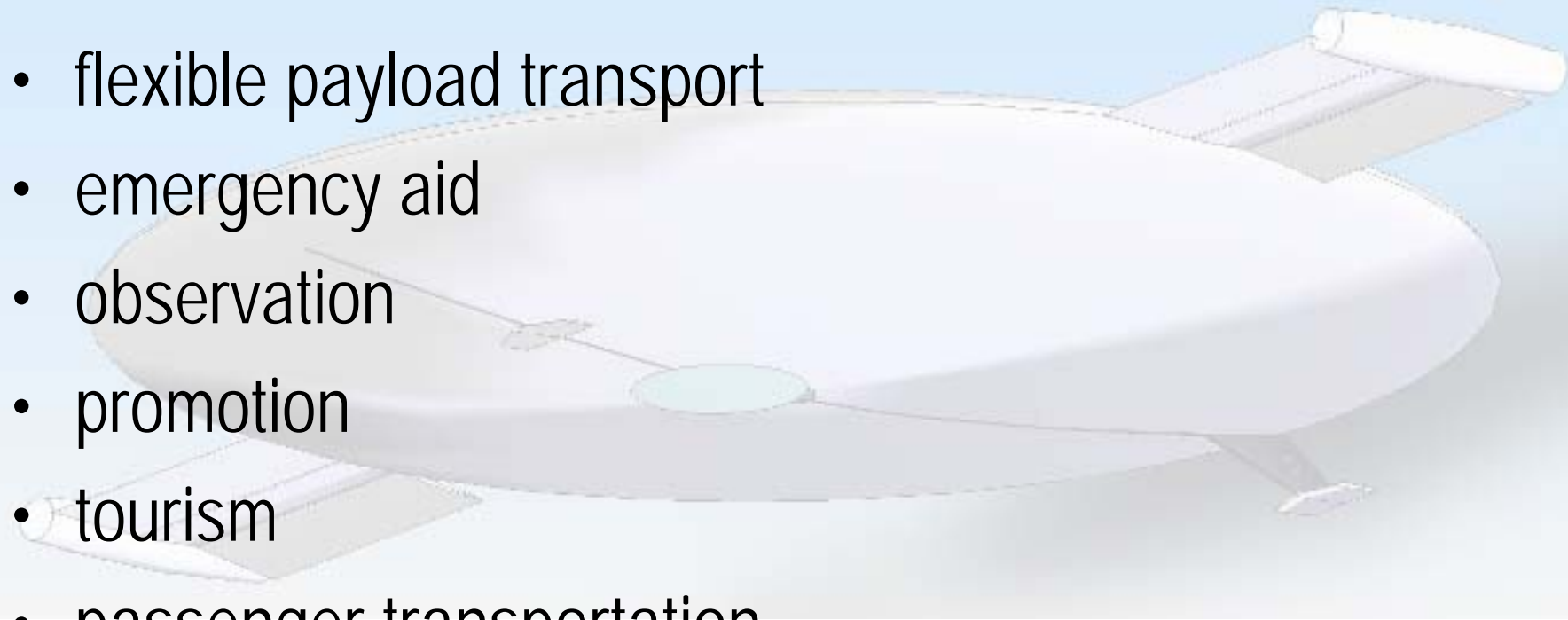
- safety
 - » parachute characteristics while malfunction
 - » synergy (shell = recovery system)
 - economy
 - » no runway needed
 - » rapid check and boarding through exchangeable cabin
 - » comfortable flight experience
 - environmental compatibility
 - » solar cells
 - » fuel cells
 - » batteries
 - method of construction
 - » a simple ring is the main structural component
 - » good applicability of fibre-composite-materials
- 

Market



Market

- flexible payload transport
- emergency aid
- observation
- promotion
- tourism
- passenger transportation



video animation

please use following link

<http://www.youtube.com/watch?v=vIFhNzJZxzo&mode=related&search>

www.Hybrid-Airplane.com





Thank You For Your Attention!

Any Questions or Suggestions?

Collaboration Welcome!

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