CLAIMS:

1. A propulsion assembly for lifting a load, the propulsion assembly including:

a primary lift surface configured to, when rotating about a central axis, provide sufficient lift for lifting the load;

a secondary lift surface including a plurality of secondary lifting surfaces configured to provide lift along a second axis for lifting the propulsion assembly, wherein the second axis is configurable between a lifting configuration, wherein the secondary lift surface lifts the propulsion assembly, and a thrusting configuration, wherein the secondary lift surface induces rotation of the primary lift surface, and wherein the secondary lift surface is configurable to provide orientation control for the propulsion assembly.

2. The propulsion assembly of claim 1, wherein the primary lift surface is movable between a stowed configuration and a deployed configuration while being lifted by the secondary lift surface, wherein a footprint of the primary lift surface is lower in the stowed configuration than in the deployed configuration.

3. The propulsion assembly of claim 1, wherein the second axis of the secondary lift surface is continuously moveable between the lifting position and the thrusting position so that the proportion of lift of the secondary lift surface used to lift the propulsion assembly is continuously reduced as the lift produced by the primary lift surface increases with increasing rotational velocity of the primary lift surface about the central axis.

4. The propulsion assembly of claim 1, wherein the propulsion assembly further including a lift surface control system to provide cyclic and collective control of the primary lift surface, wherein the lift surface control system may include servo tabs, feathered blades, or other aerodynamic control devices, and/or wherein the control surfaces may optionally be feathered effectively for faster axial flight.

5. The propulsion assembly of claim 1, wherein the primary lift surface includes a rotor; and/or wherein the secondary lift surface includes a rotor rotating about the second axis.

6. The propulsion assembly of claim 1, further including a tether for connecting the propulsion assembly to the load, wherein the tether is adapted to transmit power from the load to the propulsion assembly for powering the propulsion assembly, and wherein the tether is retractable.

7. The propulsion assembly of claim 6, wherein the propulsion assembly further includes a first docking hub located at the central axis, the first docking hub being configured to engage the load when the tether is sufficiently retracted; and/or wherein the tether is connected to the propulsion assembly with a bearing to reduce torque applied by the tether to the propulsion assembly when tension is applied to the tether.

8. The propulsion assembly of claim 6, wherein the tether includes an attachment interface to connect the tether to the propulsion assembly, and wherein the attachment interface is a non-flexible and non-rotating end point of the tether.

9. The propulsion assembly of claim 1, including a system for determining a spatial parameter of the propulsion assembly relative to the load, wherein the spatial parameter includes an absolute orientation parameter and a relative orientation parameter of the propulsion assembly relative to the load, wherein the system further includes a magnetometer and/or a gyroscope to determine the spatial parameter; and/or wherein the system includes an encoder positioned between the propulsion assembly and attachment interface, to determine the spatial parameter.

10. The propulsion assembly of claim 6 wherein the attachment interface includes an aerodynamic surface and/or a thruster to control a heading of the tether.

11. The propulsion assembly of claim 6 wherein the tether includes an adjustable attachment interface to connect the tether to the load to allow the propulsion assembly to fly at high angles with respect to the horizontal so as to allow for faster flight speeds, and wherein the second attachment interface includes an articulating frame that can change its orientation during flight to allow the load to stay level while the propulsion assembly tilts and to allow the propulsion assembly to fly at high angles of attack with respect to the horizontal and provide faster flight velocity.

12. The propulsion assembly of claim 1 wherein the load includes an aerodynamic surface capable of providing lift during horizontal flight.

13. A vertical take-off and landing aircraft including: a body having a load-carrying cavity or area for the load; the propulsion assembly of any one of claims 1 to 12 to lift the body; and

a power generation assembly configured to power the propulsion assembly.

14. The aircraft of claim 13, further including one or more directional thrusters attached to the body, the directional thrusters acting in a respective direction that is non-parallel or parallel to the central axis, wherein the directional thrusters include a ducted fan, a rotor, a jet thruster, and/or an impulse thruster.

15. The aircraft of claim 13, wherein the body further includes one or more control surfaces for setting a preferred orientation relative to a direction of travel and/or controlling an orientation of the aircraft relative to a direction of travel, and wherein the moveable surface may be usable to assist in changing the direction of travel.