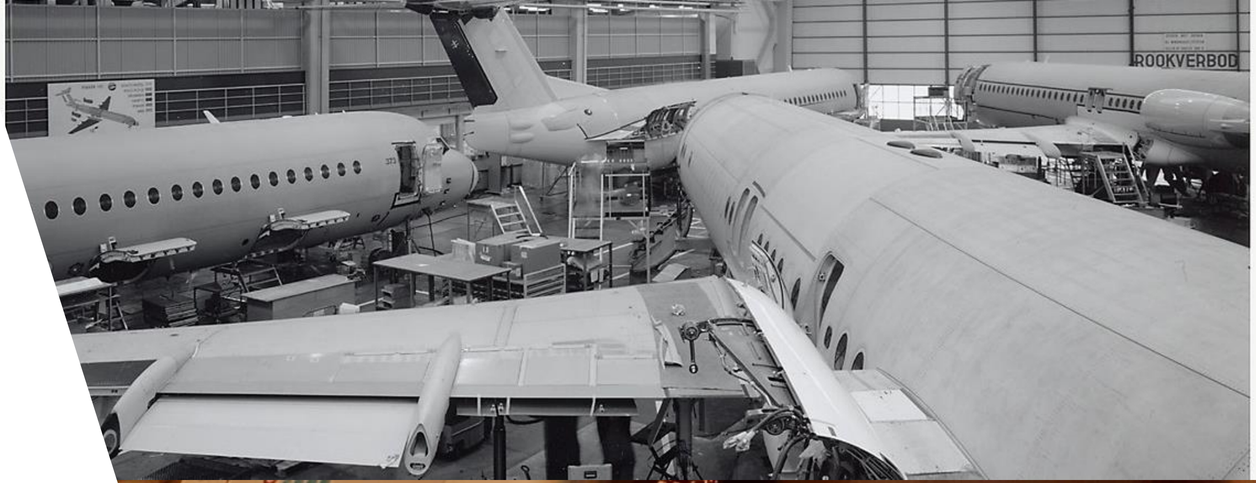
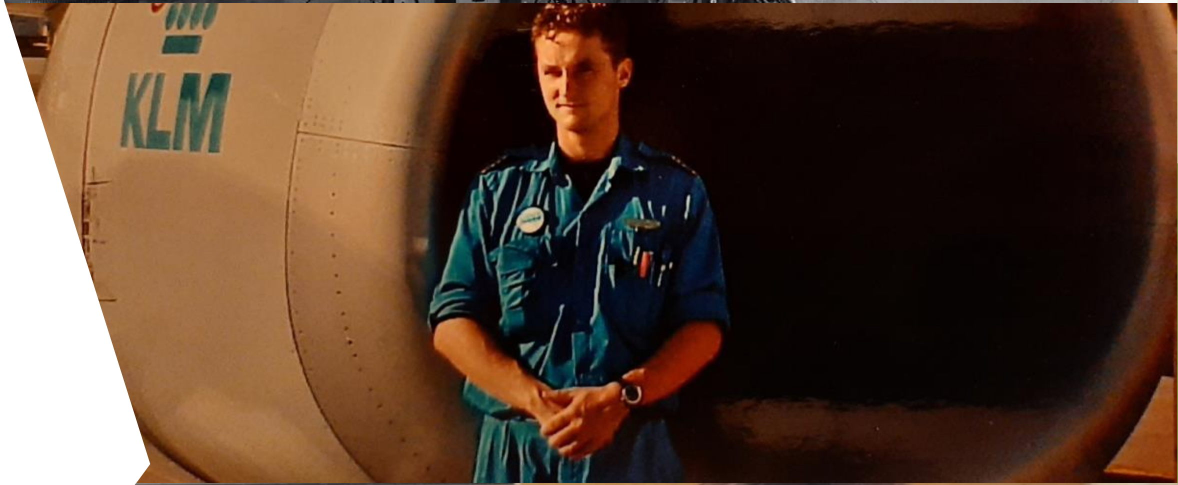
19th Maintenance Cost Conference (MCC)
Hanoi, Vietnam
4 - 6 October 2023

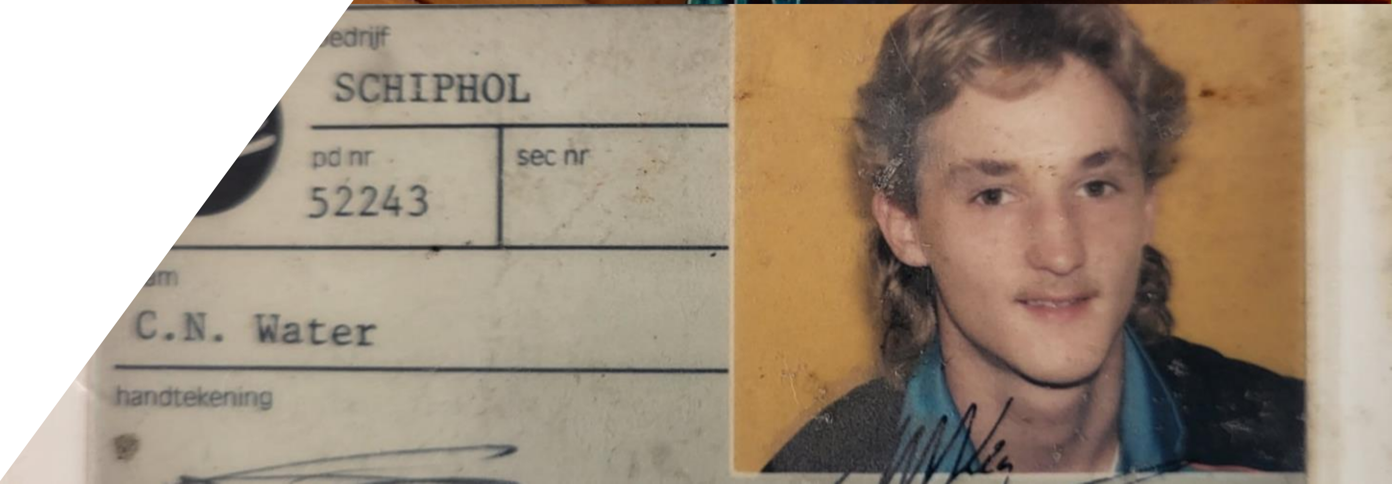
AIRCRAFT LEASING & SUSTAINABILTY

CHRISTIAN WATER

When… I was 15 years old







+ 35 years

Distribution @ Global Aviation LLC

- Director EMEA

@ SGI Aviation Services B.V

- Sales & Marketing Manager
- VP Technical Aircraft Transactions

Married with children, beautiful family & friends

First (3) thoughts

1. Fish and a bike
2. Aircraft in transition
3. Flying half the world

Comparing the definitions

Sustainabilty

- The quality of being able to continue over a period of time
- Sustainability consists of fulfilling the needs of current generations without compromising the needs of future generations, while ensuring a balance between economic growth, environmental care and social well-being.
- Sustainability is ability to maintain or support a process over time. Sustainability is often broken into three core concepts: economic, environmental, and social. Many businesses and governments have committed to sustainable goals, such as reducing their environmental footprints and conserving resources.

Aircraft leasing

- A legal agreement for a person or an organization to pay to use an aircraft for a particular period of time
- In general terms, a lease is a transfer of an aircraft without transfer of title. The owner of the aircraft, or lessor, retains legal title to the aircraft, but transfers possession of the aircraft to the lessee.
- Aircraft finance lease, a kind of lease with dual functions of fund-raising and leasing-asset, means that the lessor purchases aircraft selected by the lessee (the airline company) to possess the ownership of aircraft, and lease the aircraft to the lessee who uses aircraft upon payment within a certain period.

ECO-structure of leasing

- Financiers (banks, investors)

- Aircraft OEM’s (Boeing, Embraer, Airbus, ATR, COMAC)
- Engine OEM’s (RR, P&W, GE, Safran, IAE)
- BFE OEM’s (GE, P&W, Safran, Bae, Recaro, Jamco)

- Airlines

- Legislations (laws, treaties)

- Public opinion

- Geo political developments

The red line

- Checked 5 'of the latest ESG reports of Top-50 lessors

- 5 continents
  - Aercap (Europe)
  - ALC (North America)
  - BOC (Asia)
  - ABL (Africa)
  - DAE (Middle East)

- Following the October 2021, 77th International Air Transport Association ("IATA") Annual General Meeting, the IATA member airlines passed a resolution to commit to Net Zero carbon emissions by 2050

Sustainabilty & the leasing community

Leasing community initiatives

- All focussed on reducing environmental impact and part of its ESG
  - SAF
  - Aircraft design and operational improvements
  - Alternative propulsion (Electric/Hydrogen)
  - An initiative is the Aircaft Leasing Ireland ‘ALI’ with its initiative

Aviation Sustainability
OUR FUTURE

Conclusive

- Took some time
- CSR to ESG
- Learning curve

- Sense of urgency

Exhibit 5: Categorisation of different aviation decarbonisation pathways by 2050

Pathway		Next steps or examples	Improvement	Difficulty	Potential by 2050	Timeline
Aircraft design and operational improvements	Aircraft design and technologies [Section 3]	Winglets Light weight seating/cabin Current generation engine improvements Load alleviation	1.2% improvement per annum from 2022 to 2040 (25% total improvement) (Historical improvements have been 1.5–2%)		~25%	Some already available/ ongoing operational improvement; Continuous technology improvement with OEM's across airframe and engines
	Flight operations (including ATM) [Section 4]	Performance based navigation Perfect flight partnerships Formation flight Flight planning	Improvements of approximately 3% from air traffic management		~3%	Some already available; 2030 — ANSPs fully implemented ICAO Aviation System Block upgrades and regional programmes
	Other operational improvements [Section 4]	Electric ground power Airport infrastructure Flight planning	Marginal improvements with most potential in infrastructure renewables		<2%	Some already available; Increase in electrical storage and renewables are key enablers
Sustainable aviation fuels	HEFA Gasification/FT Alcohol to jet (AtJ) Power to liquid (PtL) [Section 5]	Investment in production Pricing Prioritisation and scale of feedstocks Airline offtake commitments Government policy/incentives	Potential to have up to 25 Mt of SAF by 2030, unlimited supply by 2050		55-60%	Some pathways already available; a number in the pipeline over the next 3–5 years at scale Power to Liquid pathway still in development, estimated for 2030+ at scale
Electric propulsion	[Section 6]	Electric and hybrid electric development well under way Battery development	Deployment in 2025 on commuter and 2030 on regional aircraft test aircraft, but small aircraft volume limiting potential		~2%	Commuter aircraft flying test beds available 2025, regional by 2030; aircraft in production from 2030+
Hydrogen propulsion	[Section 7]	Hydrogen flying test beds Infrastructure development Hydrogen fuel cells and conversion kits Hydrogen combustion engines	Deployment in 2035 on regional aircraft and 2040 on short/ medium haul driving most of improvement. But challenges on larger aircraft and slow ramp up as fleet transition required		~12%	Regional aircraft available 2035 Short/medium haul aircraft available 2040

BACK

SGI AVIATION

EFFICIENT AND SAFE AVIATION FOR A CONNECTED WORLD

- Asset Manager of aircraft and engines (E-jets to A380) (#50)
- Buyer and seller of aircraft and engines
- Technical Services:
  - PPI, Annual, Mid-term, Redeliveries, Modifications (cabin, PTF), Engine team
- CAMO (DAS Aero)
- Aircraft Registry
- 16 years with offices around the globe (AMS, SIN, BOG, MIA, XIA)
- Customer base
  - Lessors, investors, banks, ECA's and the smart Airlines ;-)
- IATA strategic partner, contributing to working-groups

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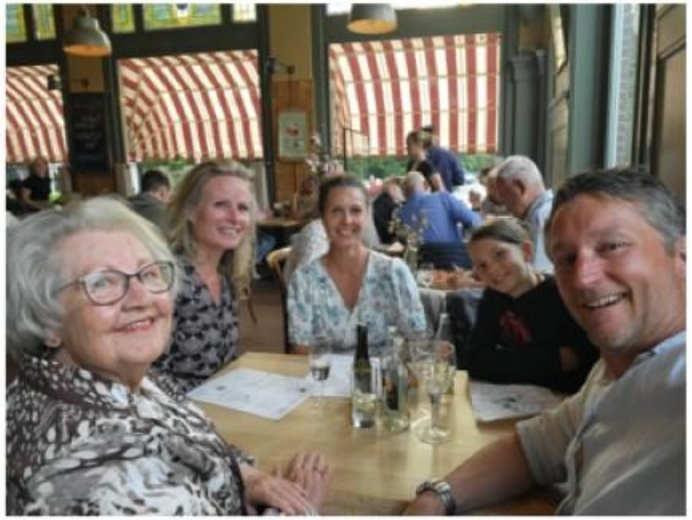
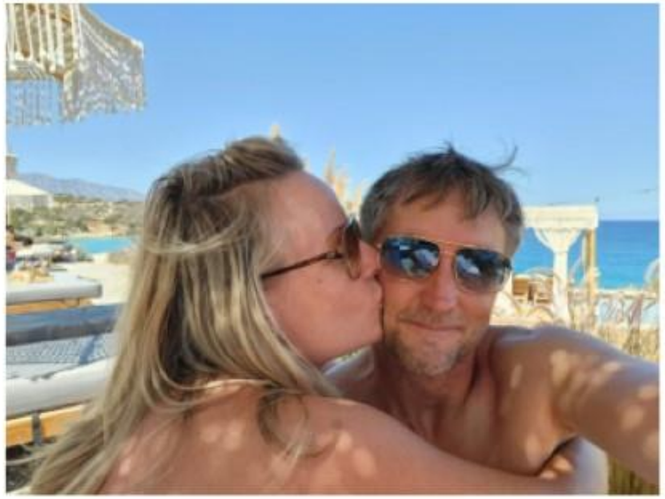
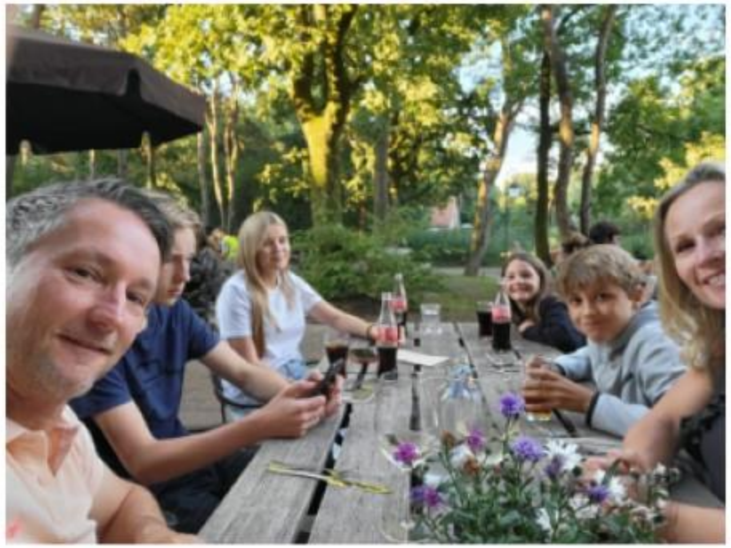
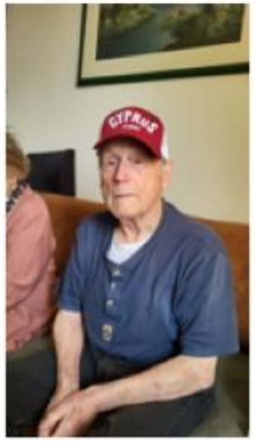
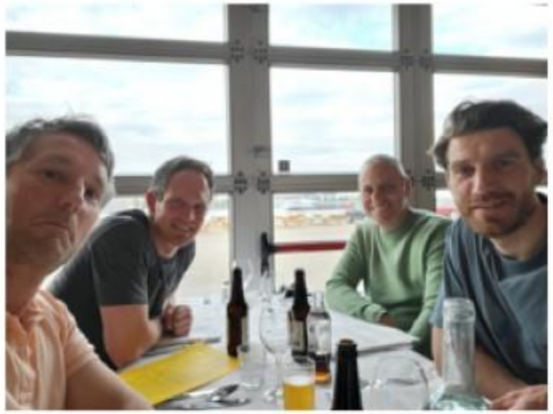
The family & friends











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The notes

In 1990 I walked into this massive building,
I was invited by a neighbour who called on a disk-phone and applied physical forms to get me trough the gate. I had a Commodore 64, no use for anything, not to communicate, not to produce things: handwork.
I was trained at Fokker for 2 years (last badge) and as Fokker shut down in 1995 I started at KLM, as an apprentice and got my pencil signed contract starting as a mechanic, became type rated, multiple roles as certifying staff, curiousity (or typicallity) got me the role of Project manager (redeliveries) and even more curiousity made me decide to accept the function of Department manager (logistics).
Trained in continious improvement (Six Sigma and LEAN), spent many projects abroad.
Driving my cars, my first mobile phone that you could actually call with, a Nokia, my daughter still has it.
In the period as mechanic I was trained by McDonnel Douglas (certified tanksealer) flying there with NorthWest Airlines and got trained by a teacher who had just become milijonair as he once bought stocks in Yahoo. The details I share….Maybe some of you are already identifying details that relate to sustainabilty. back

Top 50 Lessors (# of aircraft)

Top 50 managers by number of aircraft

Rank	Manager	2021	2022	% change since last year	Turboprop	Regional Jet	Narrowbody	Widebody
1	Aercap	2,008	1,809	↓ -9.9%	19	78	1,382	330
2	Avolon	570	587	↑ 3.0%	-	-	461	126
3	Air Lease Corporation	444	507	↑ 14.2%	-	2	388	117
4	SMBC Aviation Capital	505	506	↑ 0.2%	-	-	452	54
5	BBAM	519	456	↓ -12.1%	-	-	341	115
6	ICBC Financial Leasing	393	428	↑ 8.9%	-	18	367	43
7	BOC Aviation	396	426	↑ 7.6%	-	-	346	80
8	Carlyle Aviation Partners	228	406	↑ 78.1%	-	-	370	36
9	DAE Capital	337	362	↑ 7.4%	65	-	244	53
10	Nordic Aviation Capital	485	350	↓ -27.8%	208	142	-	-
11	Aviation Capital Group	342	347	↑ 1.5%	-	-	332	15
12	Castlelake	265	272	↑ 2.6%	15	24	173	60
13	Bocomm Leasing	258	270	↑ 4.7%	-	11	229	30
14	CDB Aviation	239	269	↑ 12.6%	-	20	206	43
15	Falco	224	257	↑ 14.7%	134	117	6	-
16	Aircastle	257	255	↓ -0.8%	-	11	219	25
17	Jackson Square Aviation	189	195	↑ 3.2%	-	-	171	24
18	Macquarie Airfinance	189	189	↑ 0.0%	-	3	175	11
19	Orix Aviation	220	183	↓ -16.8%	-	-	150	33
20	China Aircraft Leasing Company	138	175	↑ 26.8%	-	-	159	16
21	Goshawk	182	174	↓ -4.4%	-	-	158	16
22	CCB Financial Leasing	158	168	↑ 6.3%	-	-	141	27
23	CMB Financial Leasing	129	151	↑ 17.1%	-	7	121	23
24	Deucalion Aviation Limited	149	137	↓ -8.1%	-	-	108	29
25	Avmax	142	136	↓ -4.2%	57	68	9	2
26	Cargo Aircraft Management	111	130	↑ 17.1%	-	-	9	121
27	Fortress Transportation And Infrastructure Investors	108	127	↑ 17.6%	-	-	121	6
28	Standard Chartered Aviation Finance	129	121	↓ -6.2%	-	-	119	2
29	Aergo Capital	48	110	↑ 129.2%	47	-	48	15
29=	Aero Capital Solutions	53	110	↑ 107.5%	-	-	110	-
31	Altavair Airfinance	108	109	↑ 0.9%	-	4	44	61
32	JP Lease Products & Services	87	89	↑ 2.3%	-	-	72	17
33	Aviator Capital Management	72	88	↑ 22.2%	-	2	70	16
34	Aircraft Leasing & Management	87	84	↓ -3.4%	-	12	57	15
35	Merx Aviation	85	83	↓ -2.4%	-	-	78	5
35=	FPG Amentum	75	83	↑ 10.7%	-	-	67	16
37	World Star Aviation	51	78	↑ 52.9%	-	-	72	6
38	State Transport Leasing Company	78	77	↓ -1.3%	-	41	29	7
38=	Alafco	78	77	↓ -1.3%	-	-	66	11
38=	ABC Financial Leasing	68	77	↑ 13.2%	-	7	61	9
41	Regional One	42	72	↑ 71.4%	15	57	-	-
42	Avia Capital Leasing Cyprus	70	70	↑ 0.0%	-	-	60	10
43	Azorra Aviation	18	69	↑ 283.3%	8	57	4	-
44	SPDB Financial Leasing	43	66	↑ 53.5%	-	9	53	4
44=	GTLK Europe	60	66	↑ 10.0%	-	1	50	15
46	Minsheng Financial Leasing	53	65	↑ 22.6%	-	-	58	7
47	Tokyo Century Leasing	62	63	↑ 1.6%	-	3	43	17
48	Abelo Capital Aviation Limited	63	61	↓ -3.2%	61	-	-	-
49	Itochu Group	33	60	↑ 81.8%	-	-	55	5
50	VEB Leasing	61	59	↓ -3.3%	1	36	8	14
	Grand Total	10,709	11,109	↑ 3.7%	630	730	8,062	1,687

Source: Lessors and AFJ Fleet Tracker as of 30 June 2022

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