Offshore & onshore REliability DAta (OREDA®) Current challenges and presentation of the new digital handbook

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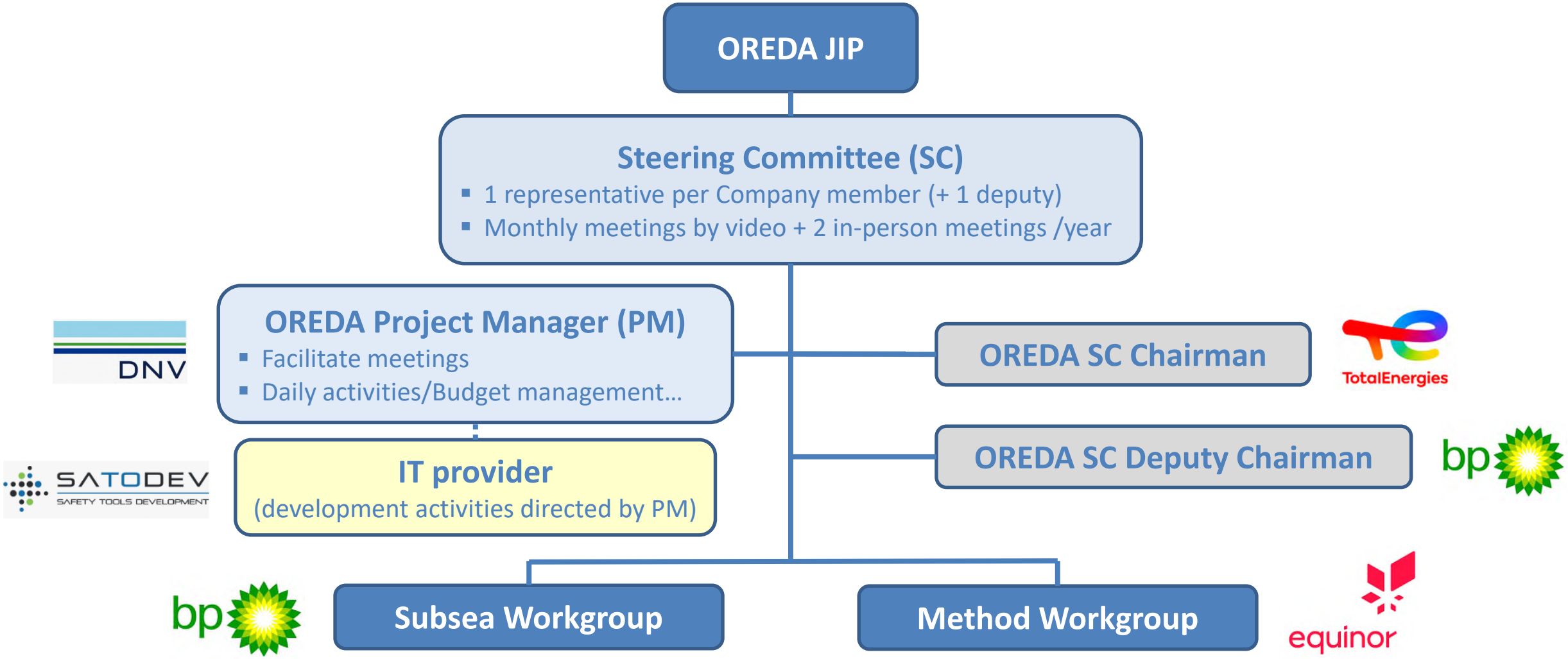
ISO

International Association of Oil & Gas Producers

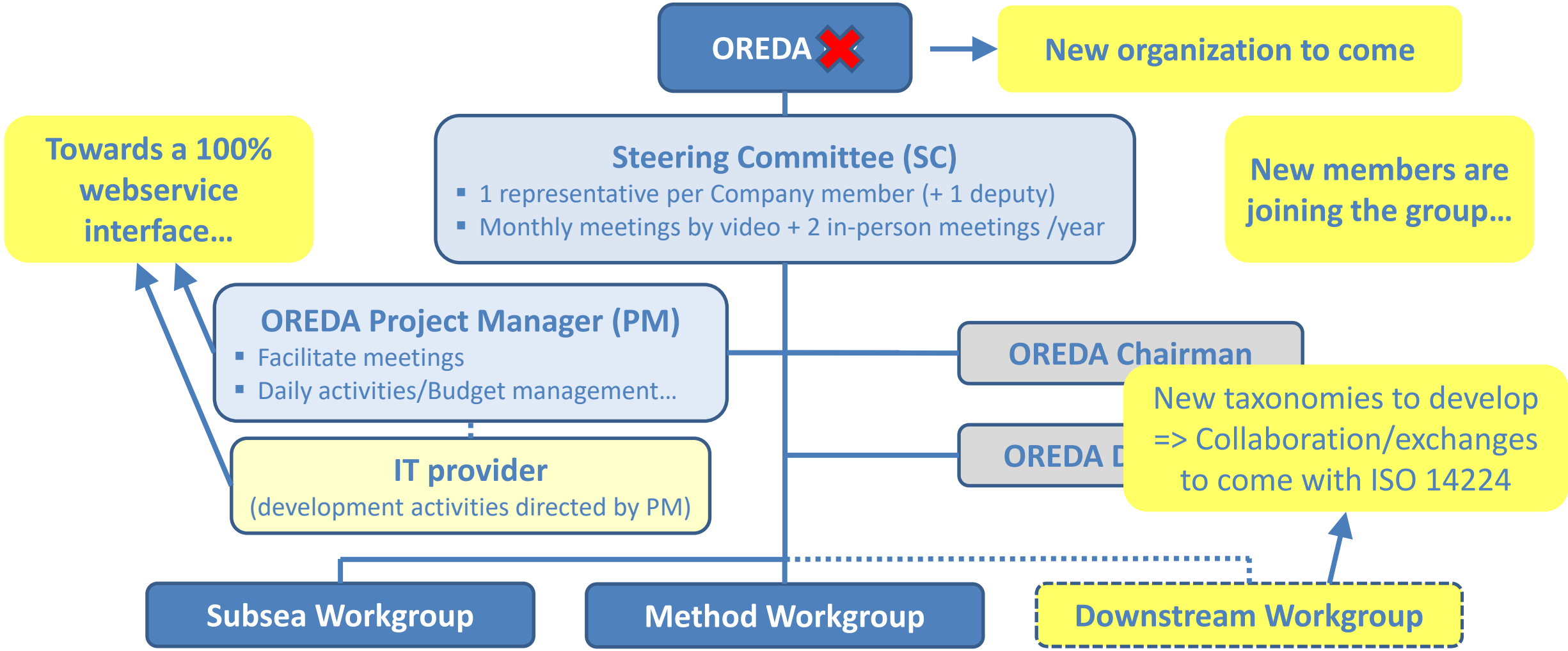
What is OREDA ?

- OREDA = Offshore and onshore REliability Data.
- JIP established in 1981.
- Main objective: Build and maintain a high-quality reliability database on offshore, onshore and subsea equipment used in Oil & Gas E&P.
- Forum for exchange and development of reliability methods and know-how within the oil and gas industry, production of ISO Standards and API.
- Cradle of ISO 14224, ISO 20815 and ISO TR 12489.
- Current members: Eni, BP, Petrobras, Gassco, Equinor, Modec Do Brazil and TotalEnergies.
- Main principle: Each Company member provides each year a certain amount of data collected on its own assets and then, all these data are anonymized and aggregated in a common database.
- About 18,500 topside eq. units (offshore and onshore) and about 3,000 subsea eq. units.

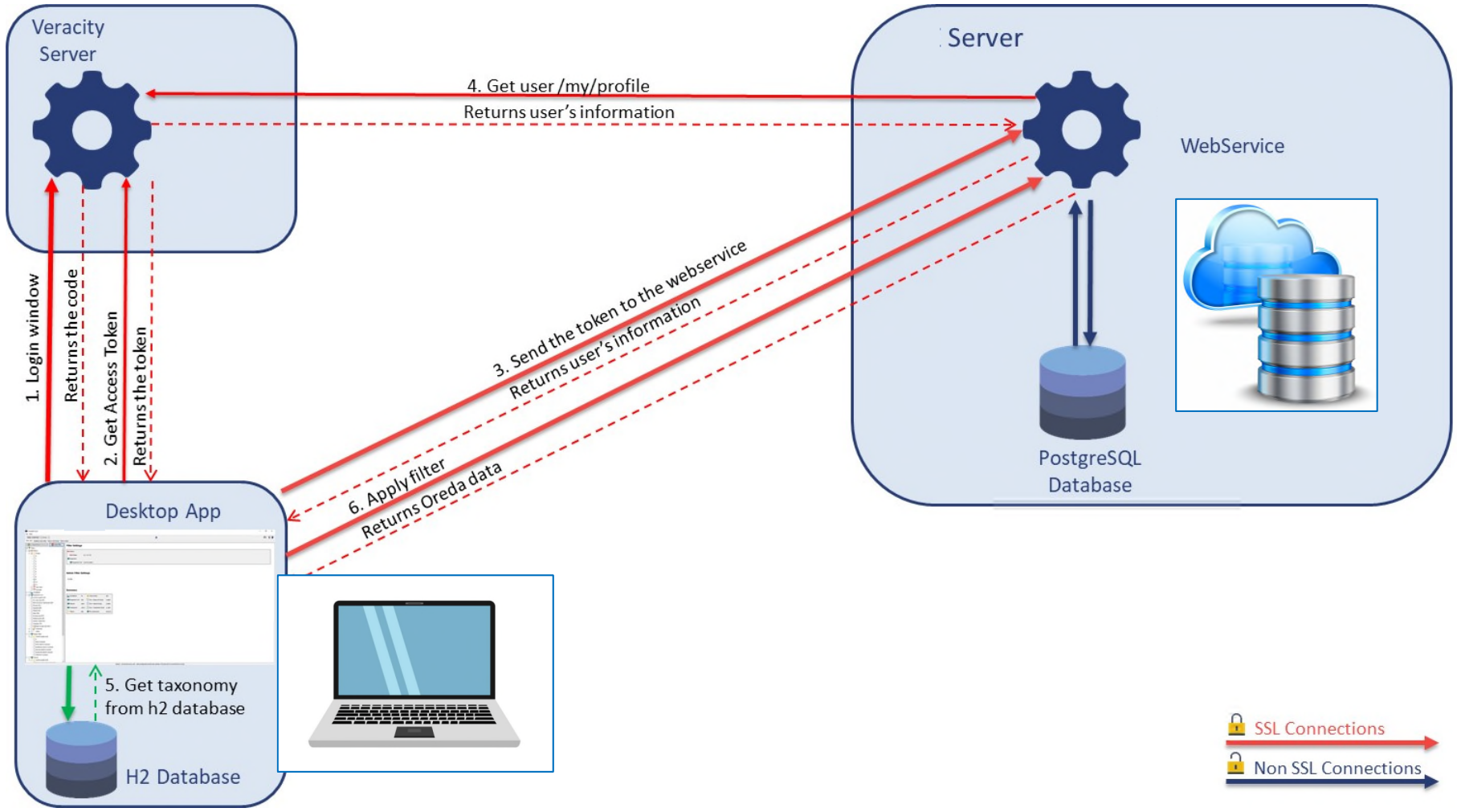
OREDA current organization



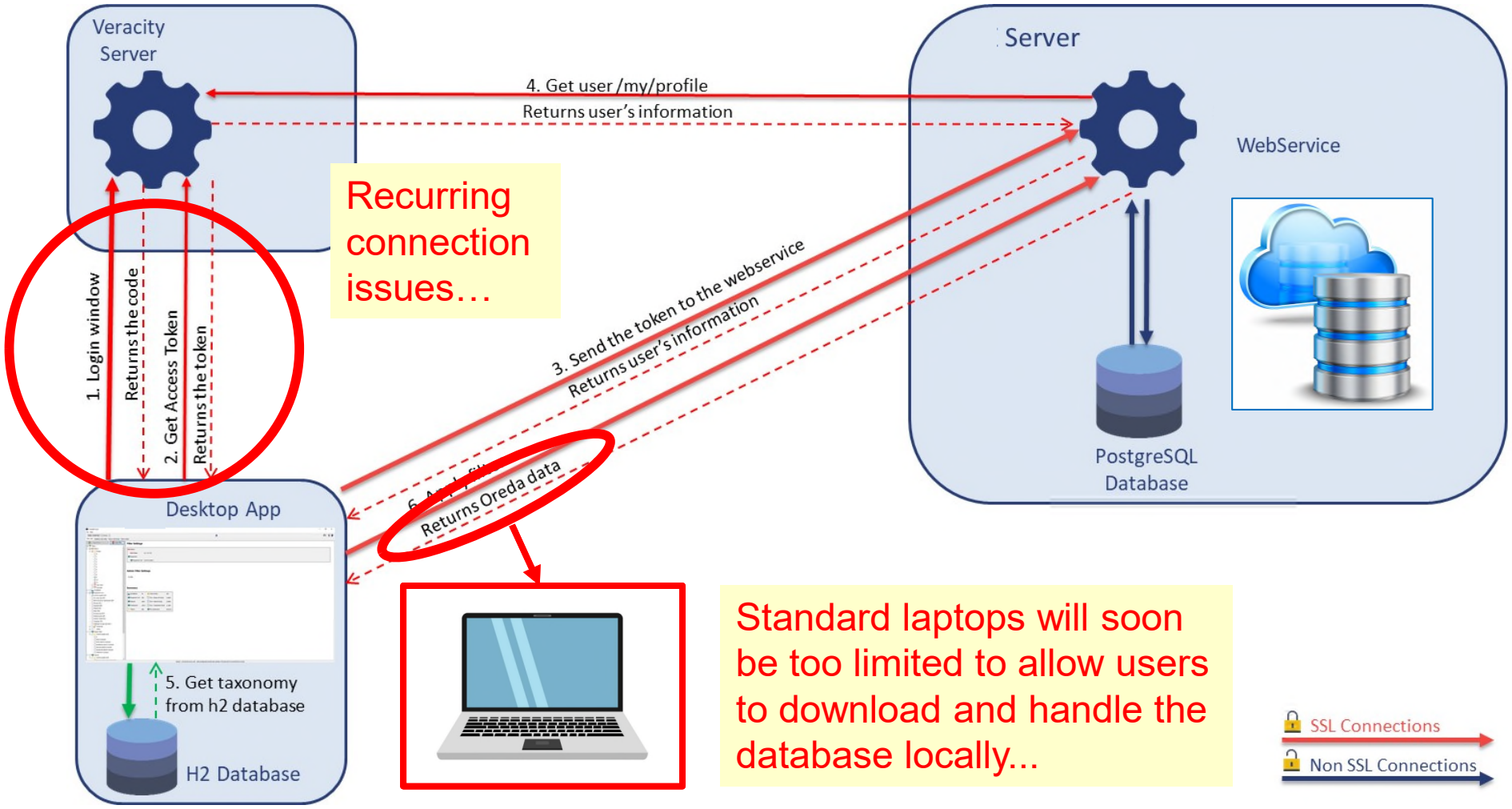
Main current and upcoming challenges



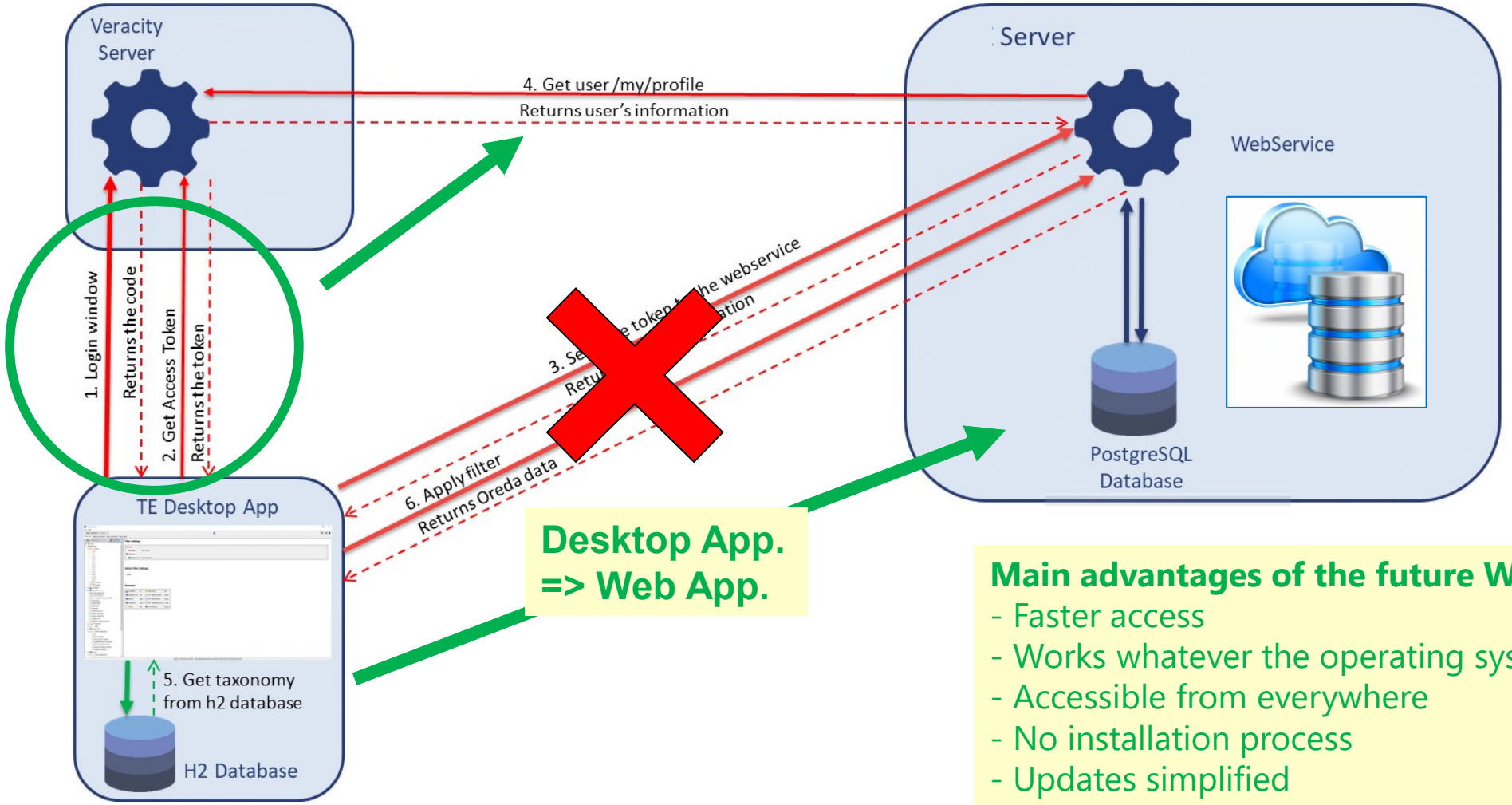
New digital handbook issued in 2020



New digital handbook: Current and upcoming issues



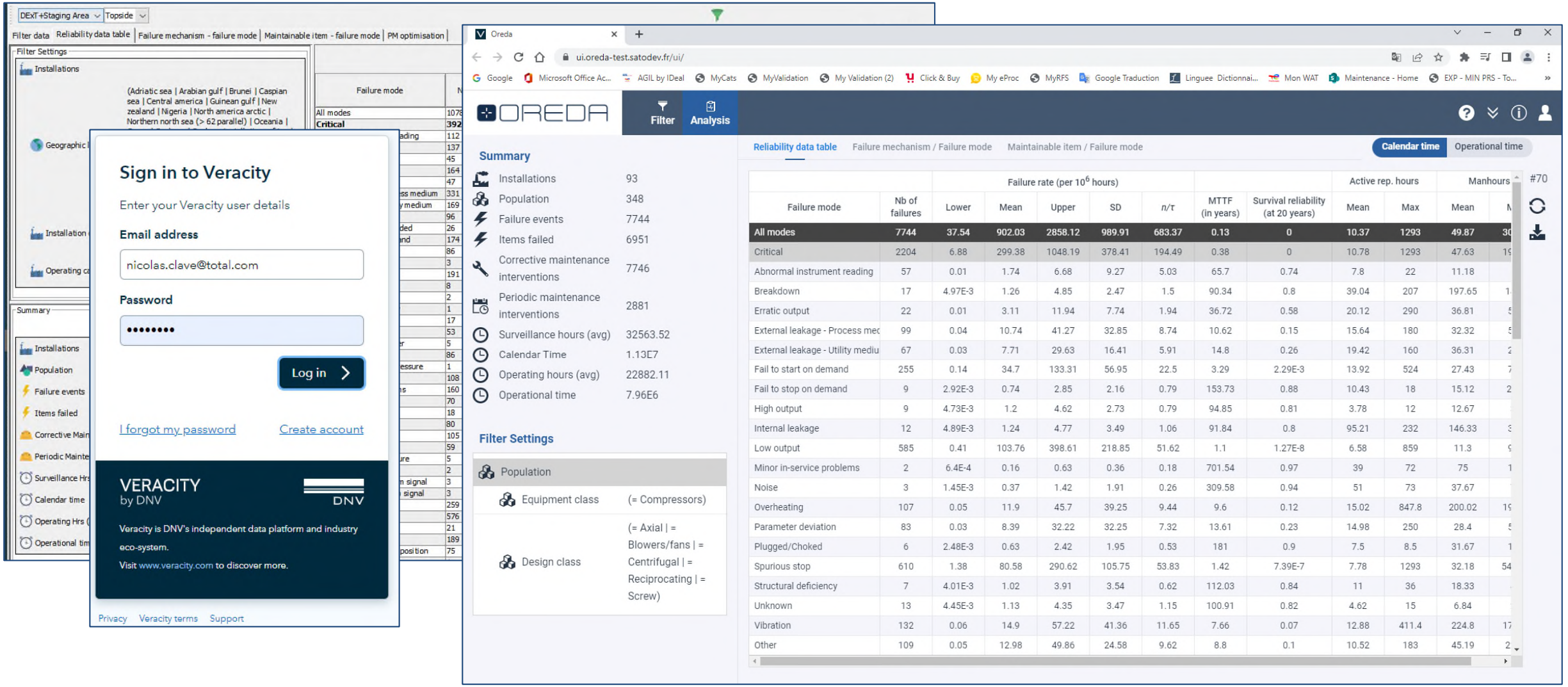
Towards a new IT solution in Jan. 2023



Main advantages of the future Web App.:

- Faster access
- Works whatever the operating system
- Accessible from everywhere
- No installation process
- Updates simplified

New Web App.: Validation in progress



Failure mode	Nb of failures	Failure rate (per 10^6 hours) Lower	Mean	Upper	SD	n/τ	MTTF (in years)	Survival reliability (at 20 years)	Active rep. hours Mean	Max	Manhours Mean
All modes	**7744**	**37.54**	**902.03**	**2858.12**	**989.91**	**683.37**	**0.13**	**0**	**10.37**	**1293**	**49.87**
Critical	2204	6.88	299.38	1048.19	378.41	194.49	0.38	0	10.78	1293	47.63
Abnormal instrument reading	57	0.01	1.74	6.68	9.27	5.03	65.7	0.74	7.8	22	11.18
Breakdown	17	4.97E-3	1.26	4.85	2.47	1.5	90.34	0.8	39.04	207	197.65
Erratic output	22	0.01	3.11	11.94	7.74	1.94	36.72	0.58	20.12	290	36.81
External leakage - Process mec	99	0.04	10.74	41.27	32.85	8.74	10.62	0.15	15.64	180	32.32
External leakage - Utility mediu	67	0.03	7.71	29.63	16.41	5.91	14.8	0.26	19.42	160	36.31
Fail to start on demand	255	0.14	34.7	133.31	56.95	22.5	3.29	2.29E-3	13.92	524	27.43
Fail to stop on demand	9	2.92E-3	0.74	2.85	2.16	0.79	153.73	0.88	10.43	18	15.12
High output	9	4.73E-3	1.2	4.62	2.73	0.79	94.85	0.81	3.78	12	12.67
Internal leakage	12	4.89E-3	1.24	4.77	3.49	1.06	91.84	0.8	95.21	232	146.33
Low output	585	0.41	103.76	398.61	218.85	51.62	1.1	1.27E-8	6.58	859	11.3
Minor in-service problems	2	6.4E-4	0.16	0.63	0.36	0.18	701.54	0.97	39	72	75
Noise	3	1.45E-3	0.37	1.42	1.91	0.26	309.58	0.94	51	73	37.67
Overheating	107	0.05	11.9	45.7	39.25	9.44	9.6	0.12	15.02	847.8	200.02
Parameter deviation	83	0.03	8.39	32.22	32.25	7.32	13.61	0.23	14.98	250	28.4
Plugged/Choked	6	2.48E-3	0.63	2.42	1.95	0.53	181	0.9	7.5	8.5	31.67
Spurious stop	610	1.38	80.58	290.62	105.75	53.83	1.42	7.39E-7	7.78	1293	32.18
Structural deficiency	7	4.01E-3	1.02	3.91	3.54	0.62	112.03	0.84	11	36	18.33
Unknown	13	4.45E-3	1.13	4.35	3.47	1.15	100.91	0.82	4.62	15	6.84
Vibration	132	0.06	14.9	57.22	41.36	11.65	7.66	0.07	12.88	411.4	224.8
Other	109	0.05	12.98	49.86	24.58	9.62	8.8	0.1	10.52	183	45.19

Q&A