



“There is no doubt that Formula 1 has the best risk management of any sport and any industry in the world”
Sir Jackie Stewart

The future of digital asset management

Dr Peter van Manen

Monday 24 June 2018

SYSTEMS AND ENGINEERING TECHNOLOGY



RISK & CHANGE

Digital twins



Telemetry



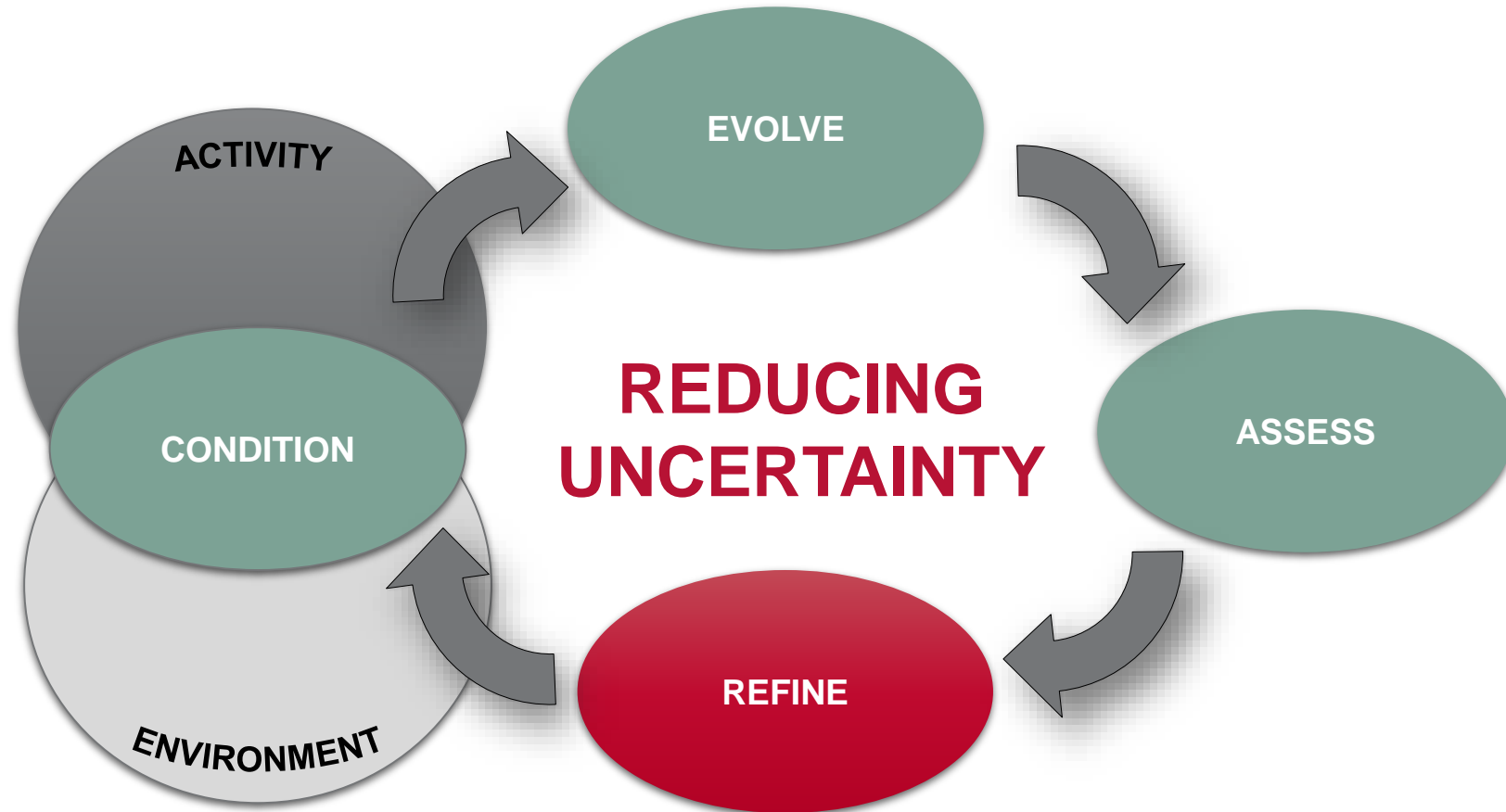
Real-time data



Remote data



Embracing imperfect data



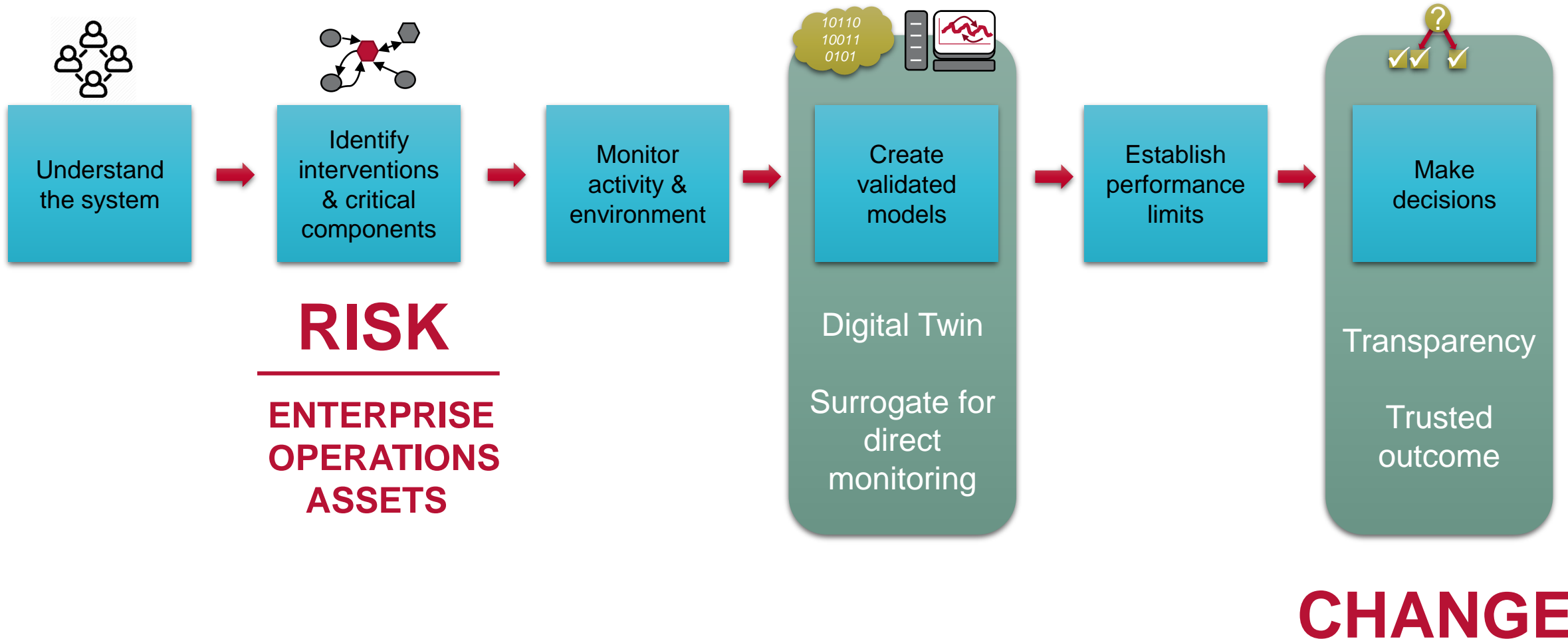
Wind



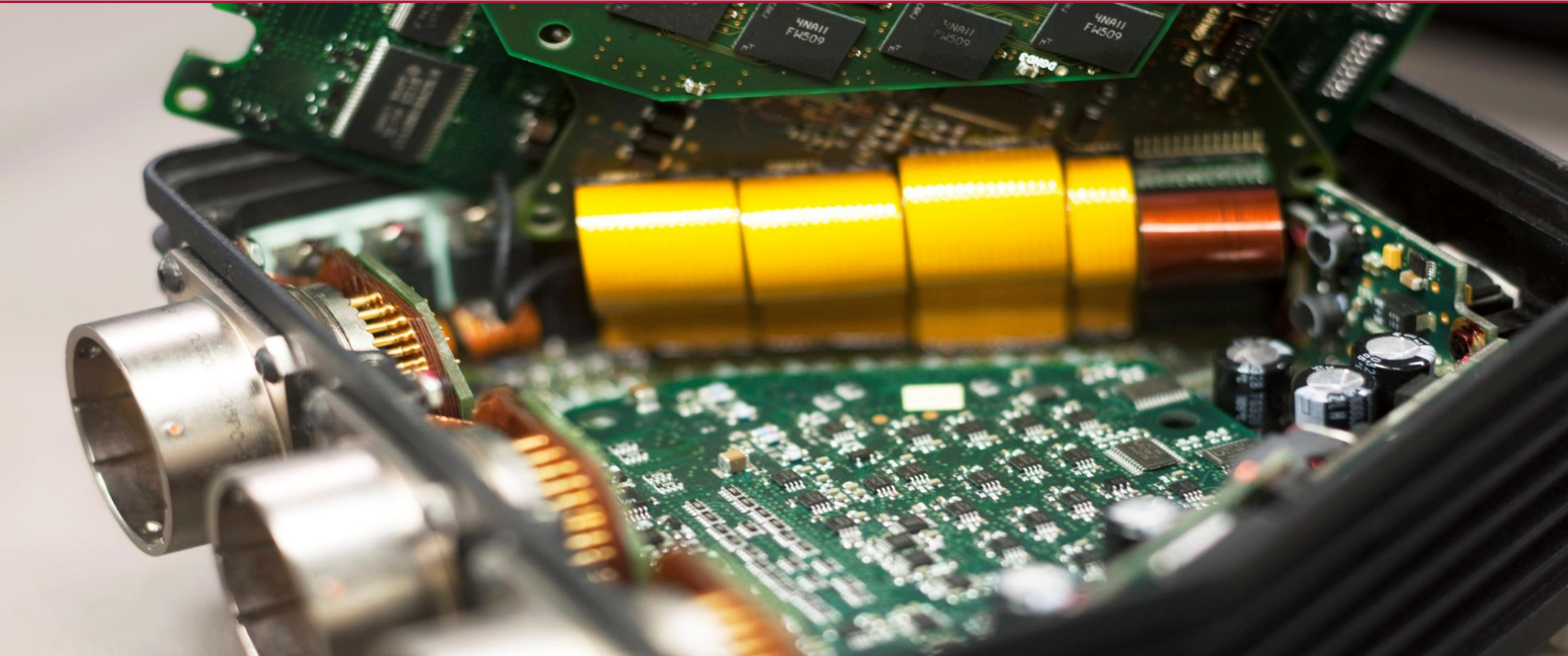
Nuclear



Science, measurement and maths



Primary data



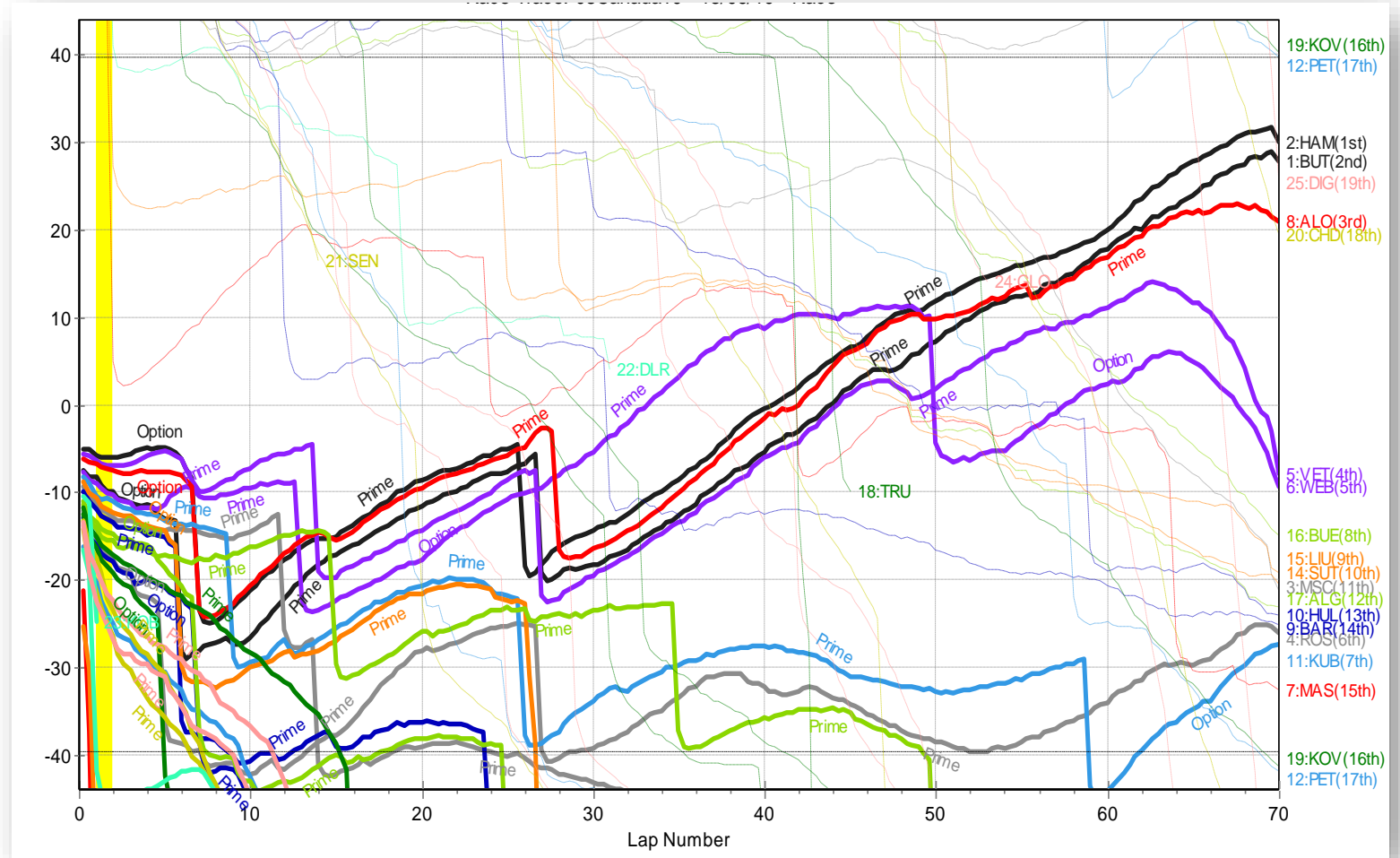
Real-time digital twins



Race metrics

P	Name	Gap	Interval	LAP	Sector 1	Sector 2	Sector 3	Pit
1	R. GROSJEAN	25	1:37.885	35.3				1
2	M. WEBBER	2.9	2.8	OUT	53.5			2
3	S. VETTEL	3.4	0.5	1:37.883	38.9			1
4	N. HULKENBERG	27.9	24.4	1:38.427	35.7			1
5	F. ALONSO	30.1	2.1	1:38.849	35.8			1
6	F. MASSA	33.4	3.2	1:38.427	35.5			1
7	K. RAIKKONEN	34.2	0.8	1:38.467	35.5	44.0	18.7	1
8	E. GUTIERREZ	37.8	3.3	1:39.092	35.7	44.4	18.8	1
9	S. PEREZ	38.7	1.0	1:39.082	35.6	44.4	18.9	1
10	V. BOTTAS	51.5	12.7	1:39.885	36.0	44.6	19.0	1
11	P. DI RESTA	53.2	1.6	1:39.802	36.0	44.5	18.9	1
12	P. MALDONADO	54.4	1.1	1:39.796	35.9	44.8	19.0	1
13	A. SUTL	55.2	0.8	1:39.816	36.1	44.6	19.0	1
14	D. RICCIARDO	55.9	0.6	1:38.702	35.7	44.0	18.9	1
15	N. ROSBERG	59.1	2.2	1:55.886	53.7	43.3	18.8	3
16	J. BUTTON	64.5	6.3	1:37.842	36.3	43.7	18.7	2
17	J. VERONE	70.7	6.2	1:37.134	35.1	43.5	2	1
18	M. CHILTON	84.9	14.1	1:40.853	36.7			2
19	C. PIC	11	16.3	1:41.187	36.5			2
20	L. HAMILTON	16L	17L	RETIRED		25.2	L1	2
21	G. VAN DER GAR			STOP				
22	J. BIANCHI			STOP				

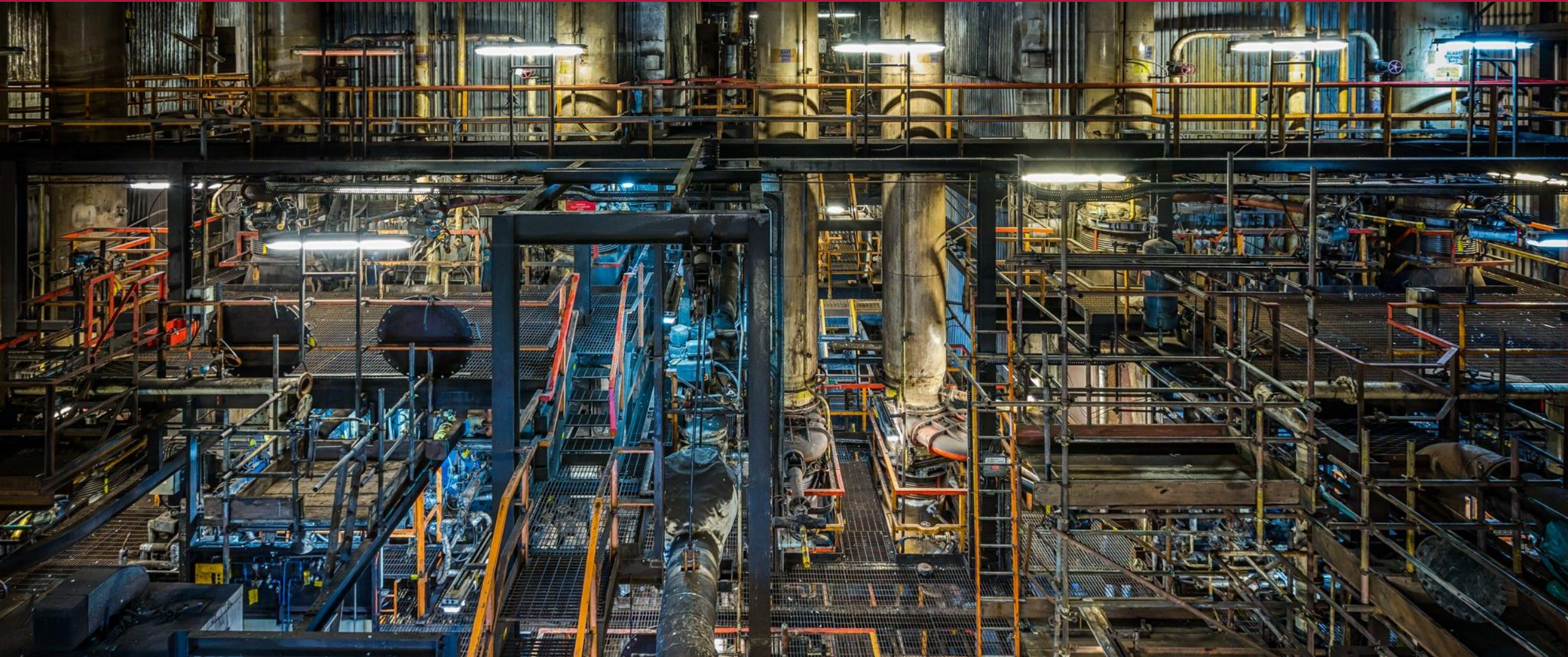
BEST LAP: 18 J. VERONE 1:37.134 ON LAP 24



Corrosion



Corrosion under insulation



Gas turbines





RISK & CHANGE



Coming up tomorrow..

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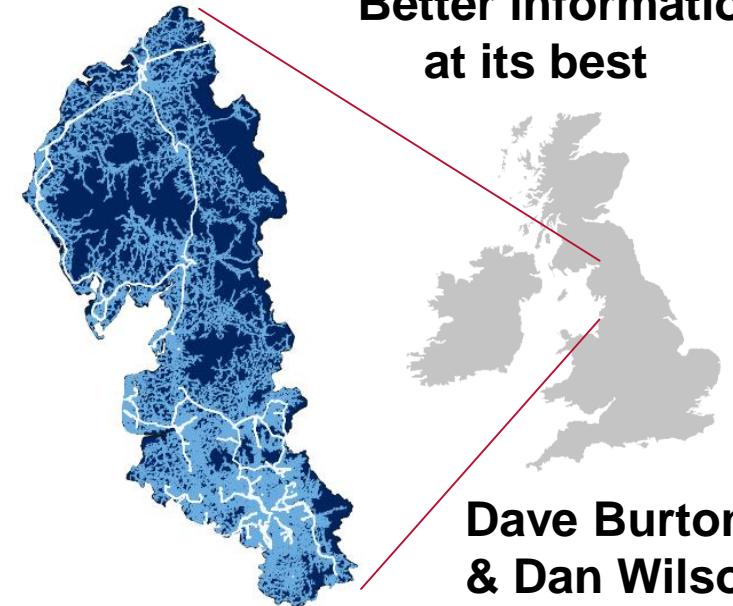
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