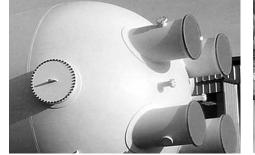


Nuclear Division







Symposium 2018

Grand Targhee, Wyoming

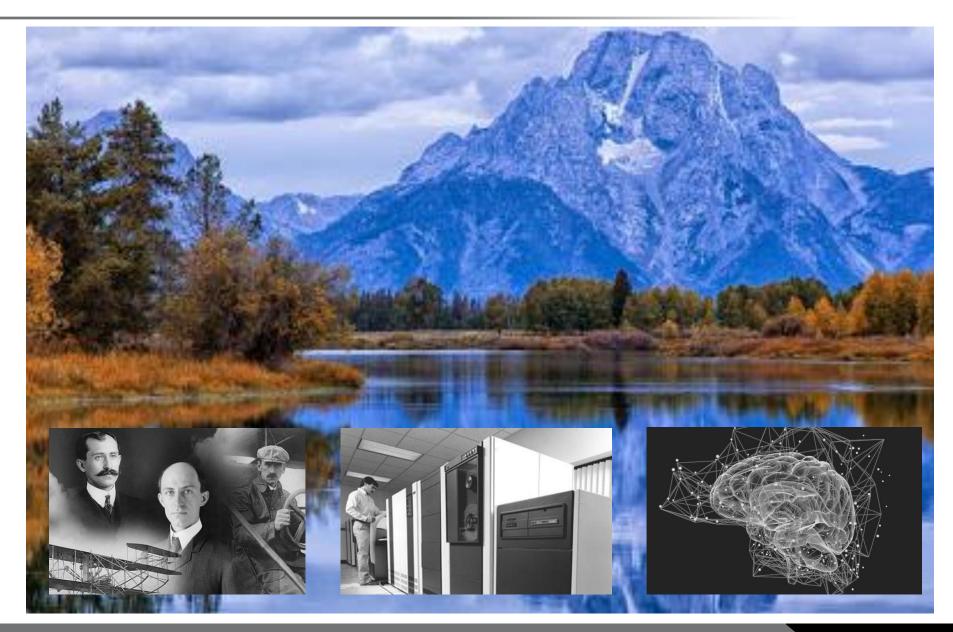




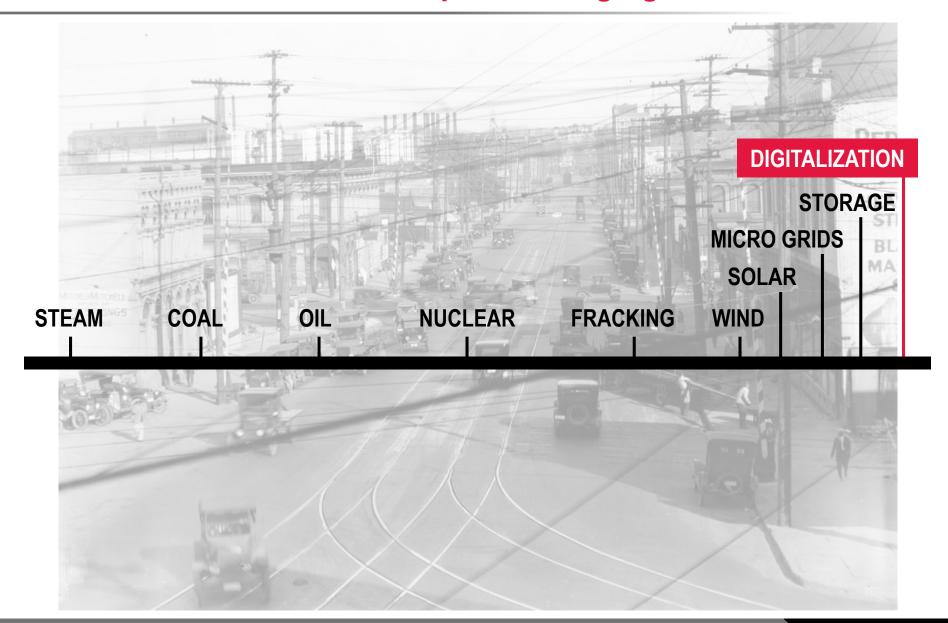




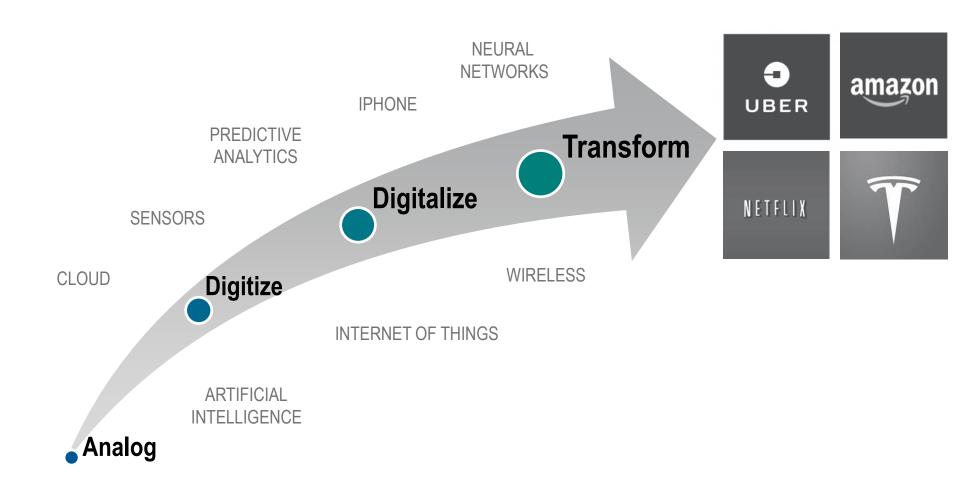
Introduction



The Electric Power Landscape is Changing



Digital Technologies are Transforming Business Models



First Observation – Huge Potential



Growing the Economy

Europe can add €2.5 trillion to GDP in 2025



Unlocking Value

The digitalization of electricity could unlock \$3.1 trillion in industrial value over the next decade



Transitioning to a sustainable world

Digital initiatives could deliver an estimated 26 billion tons of net avoided CO2 emissions

Second Observation – Everyone's Onboard

77%

of businesses view digitalization as their first strategic priority

70%

said their companies have a digital transformation strategy

\$2 Trillion

to be spent on digital transformation (IDC)

usds.gov

"building a more awesome government"

Third Observation – It's Disruptive











average S&P500 tenure in 1965



average S&P500 tenure in 2026

All disruption takes place on an industry-wide scale, forcing a significant shift in profitability from one prevailing business model to another.

Fourth Observation – High Barriers

Only 18% of companies consider their digital strategies very effective













Fifth Observation – A Lot of Hyperbole

Digitalization – a sure-fire Path to Gender Digitization for peace: Empowering global youth 31. Januar 2017 Fro the through technology Fort 2016 showed us that we live in volatile times: record breaking global temperatures, record number of "Dig By Ola Jo Tandre | Jan 06, 2017 Sylvi gend

- The Telenor Youth Forum, in partnership with the Nobel Peace Center, empowers youth to solve social
- The Nobel Peace Prize events are well timed with the December holidays and the approaching New issues through technology.

Year, when much of the world takes a collective breath to reflect on what's most important in our lives. Both looking back and charging ahead, we resolve to do better and be better. Because 2016 showed us that we live in volatile times: record breaking global temperatures, record numbers of refugees fleeing conflict, global security threats, political upheaval; the list seems endless. But the good news is that we already have a lot of the knowledge and resources needed to create solutions that could better our circumstances. And we have the largest single generation of youth the

world has ever seen who want to do something about this. Nearly two billion of them.



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Final Observation – Lots of Opportunity







Digitalization will impact every step of the electric power value cnain

Power Generation

PREDICTIVE ANALYTICS
DIGITAL TWINS
VIRTUAL REALITY

Transmission & Distribution

MOBILE WORKERS
AUGMENTED REALITY

Commercial & Residential

BLOCKCHAIN
CUSTOMER EXPERIENCE
CONNECTED HOME
ENERGY MANAGEMENT

Digitalization at Curtiss-Wright



Dave Adams, CEO

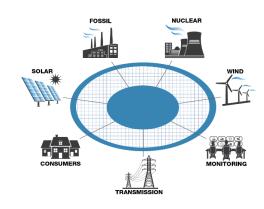
...Innovation should be a key component of every planning team's efforts...

...Every business should consider the macro trends of Automation, Digitalization and Electrification as they relate to their specific industry and market...

CW Nuclear Key Strategies

ENABLE DIGITALIZATION OF POWER INFRASTRUCTURE

- Expand our products and service offerings to help power companies transform to digital
- Hardware and software solutions



INNOVATION

- New products and services to address obsolescence, aging, safety and cost pressures
- New plant designs



Innovation Product Pipeline

Ideate Develop Test Commercialize

Real-Time PEPSE
Digital Feedwater Controls
Mobile In-Processing
AcousticEye DUETTM
Manually Encoded PAUT

High Density EPA
Pinserts
NuScale Valves / EHOs
Small Linear EHO
Wireless Monitoring
AP1000 ZEND
ITT Hydramotor Replacement

Field Assembled QDC

Zero Entry Nozzle Dam

Modern Analog Safety System

Remotely Installed SG FME

Covers

Segmented Reactor Vessel

Guide Pins

Cycle Isolation

Vertical Hinge

Non-Safety Digital Control

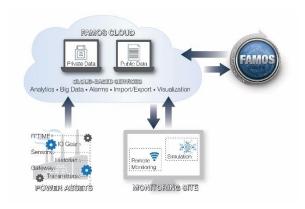
SEER

Digital Focus Areas

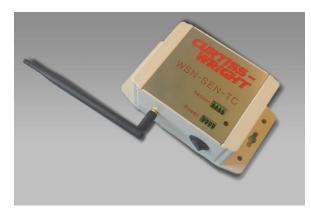
CLOUD

ANALYTICS

SENSORS & WIRELESS

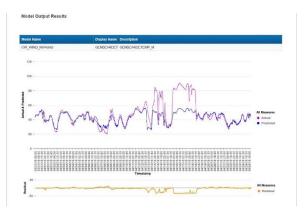






MOBILE

MACHINE LEARNING



DIGITAL CONTROL





Digital Focus Areas

"DIGITAL" HARDWARE



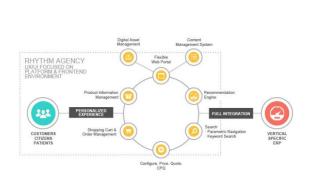
DIGITAL MONITORS



DIGITAL EQUIPMENT CONTROL



CUSTOMER VALUE



APA / PDP

Dienfox							Evap Cooler: Dust Burner:	On	On	Station Service		74
Current Hode of Operation	2x2x2	t/Brienries		ET 3	GT 2		Anti-loing:		Off	Net UHR (kJ/kWh)		- 2
Servi Cureur (MSG)	795.51		Adiabatic CT (%)	88.1	89.0							
		Goo Turbine Ipontropic Rff (%)		79.5	76.7	First Separt	GT I	nr a	Junki	est Conditions		
		Thermal Officiency (%)		19.6	10.2	HIP (PhySET)	1013.1	1013.1	Free	ere (BEG)		
			ments (.e.)	79.0	10.2	Fuel Flow (RFH)	100200.2	162143.6	Tong	oradure (PF)		0.7
Compressor infet Conditions	QT 1	UT 2				Heat Input (MPRhehr)	2475.2	2449.1	Distri	aby (%)	- 8	8.3
Pressure (FSIA)	16.4	44.1				Pressure (PSUS)	331.8	318.5	Wind	Speed		2.1
Otherential Pressure (InH20)	2.0	1.7				Temperature (FF)	382.9	300.1		Wind Dire	ection	
Langurature (*)	49.3	49.1								200		
Row (KOYPH)	4343.0	4304.1	Trans Cooling Outlet	GT L	GT 2	Tears 6	Cooling Inlet	GT L	GT 2	A		
25V Position	100.0	100.0	Processo (PSIG)	397.5	399.3			801.4	ency A	All I		
Evap Cooler Status?	On	On	Temperature (%)	100.4	075.2			543.6	240.8			A .
Dut Burner Steller?	- On	On	Row (MPCH)	124.7	117,8	- A Fee (129.7	110.8	/ V		IX.
Anti (cine Status?	-060	00	Life (60.40)	120.7	1100	A contract		100.7	117.8			0
vop Coder Offediseness (%)	89.5	56.1					* /	-		100	ġ	7
Evop Coder Effectiveness (%) sect Bulb Tomo (%)		95.1						6	7	5	- 3	
From Code (Mallomes (Mallo	89.5		Compressor Surfer Integer state (1)	611 840.2	\$12 8424		as Turbine time	5/1 784.1	U1 2 283.3	S		
From Cooler (filed) series (filed) interest (filed) from (filed) from (filed) from (filed) from filed filed from filed from filed from filed) from filed f	80.5 49.1 67.1 249.4	67.2 237.6						784.1	283.3		07.1	ar.
Evop Cooler Offectiveness (%)	80.5 49.1 6T 1 249.4 219.4	61.1 67.2 237.6 240.1	Temperature (F)	840.0	942.6			784.1 Turbire O	283.3 Bet		OT J	0T2
Coop Coder Offset Seath Coop (%) Get Buth Tomo (%) Generator Conditions Gross Fore CHAP Converted Annie Brane (MV)	67.1 249.4 249.4 249.4	67.2 297.8 240.1 240.1	Temperature (F)	840.0	942.6			784.1 Turbine O	283.3 Bet		OT J	0T2 14.3
Cogn Coder (Shellowene (Co) Text Buth Tono (Co) Generator Conditions Gross Found (HW) Tonomied Annie Show (SW) Accordance Tono (Co) Accordance Tono (Co)	60.5 49.1 67.3 249.4 219.8 249.5 5.4	67.2 237.0 240.1 4.0	Temperature (F)	840.0	942.6			784.1 Turbine Or Pressure (Diff Pressure)	283.3 (Belt PS15) (Falson (BDK))	inap)	14.5	14.1 19.1
Coop Coder (filediseases (filediseases (filediseases (filediseases)) Generator Conditions Generator Conditions Generator (filediseases) Generator	60.5 49.1 67.3 249.4 219.8 249.5 5.4	67.2 237.0 240.1 4.0 page.5	Temperature (F)	840.0	942.6			784.1 Turbine O	283.2 offet PSSS) Francisco (RSSS) Tomo (MS)	(erap)	14.5	14.1

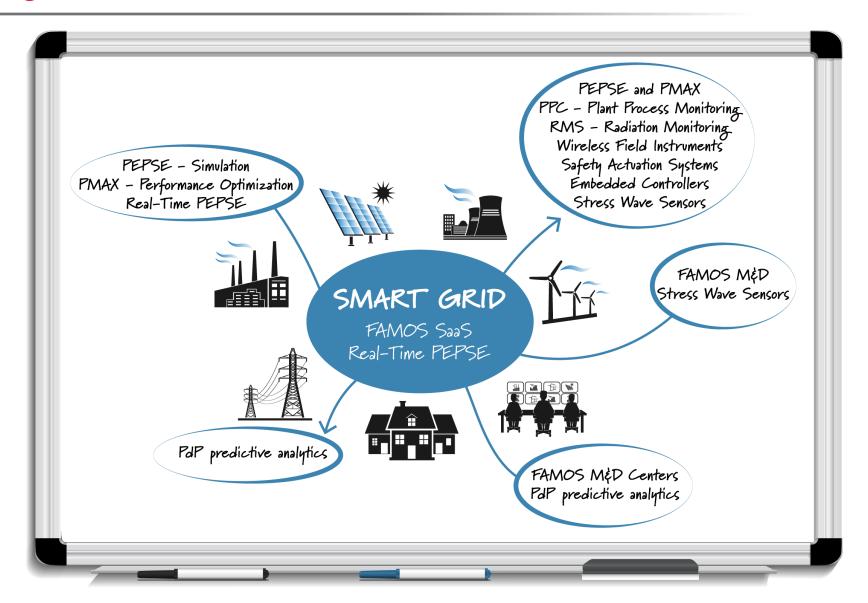
AUGMENTED REALITY



Digital Sales



Digitalization White Board



Conclusion



Thank You



Kurt Mitchell VP/GM, Curtiss-Wright Nuclear



www.cwnuclear.com

