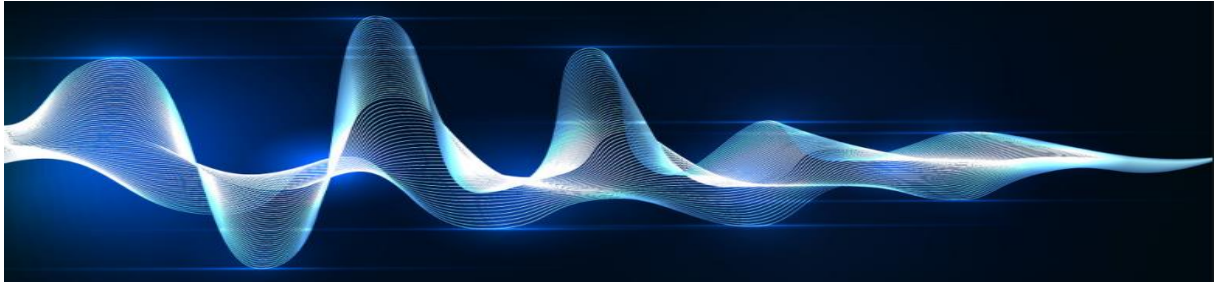


# Game Changer: “Digitalisierung im Verpackungsdruck”

Digital Printing Systems by the Heidelberg Group

Martin Leonhard



DOD | Waveform

**HEIDELBERG**

1

Digitaler Zusatznutzen im Verpackungsdruck

**1. Use Case A: Digitaler Faltschachteldruck bei Philip Morris International**

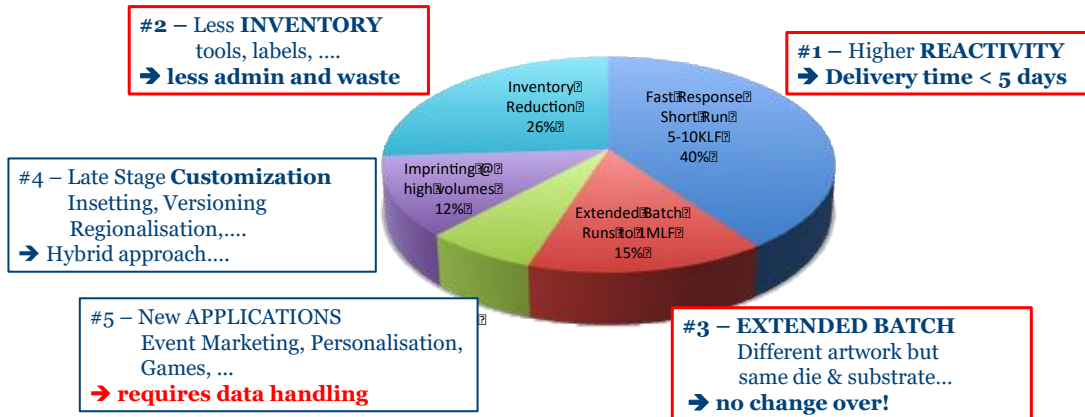
2. Use Case B: Digitale Bedruckung von Tubenlaminat

2

# Customer Benefits using Digital Printing for Packaging?



## Principal Digital Value Propositions



Source: IT Strategies 2015

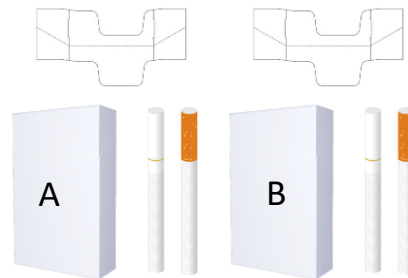
© Gallus Ferd. Ruesch AG | Titel der Präsentation ("Einfügen > Kopf- und Fußzeile")

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3

UP TILL NOW...

### 1 NEW PRODUCT LAUNCH



2 SKUs & 6 GTPs  
 4 months to 1<sup>st</sup> market introduction  
 2 years to global deployment

SKUs – Stock Keeping Units  
 GTPs – Good to Prints  
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# OUR NEW REALITY

## 1 NEW PRODUCT LAUNCH



... up to 15+ Flavors

SKUs – Stock Keeping Units  
GTPs – Good to Prints  
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## UP TILL NOW...

### 1 NEW PRODUCT LAUNCH



2 SKUs & 6 GTPs  
4 months to 1<sup>st</sup> market introduction  
2 years to global deployment

More than 100 SKUs & GTPs  
Simultaneous WORLDWIDE LAUNCHES



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# NOW, more than ever we need:



Flexibility



Agility



S2M

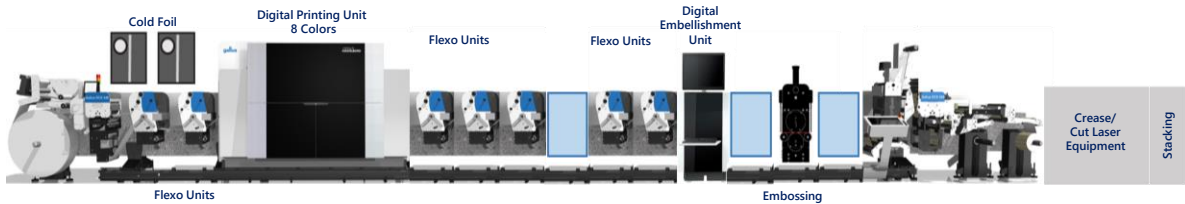
S2M: Speed-To-Market  
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# PMI's 1<sup>st</sup> Folding Carton Digital Press

## Gallus LabelFire Hybrid



CONCEPT VALIDATION  
AFTER 12 MONTH

Digital color standards

Approved designs

Commercial production

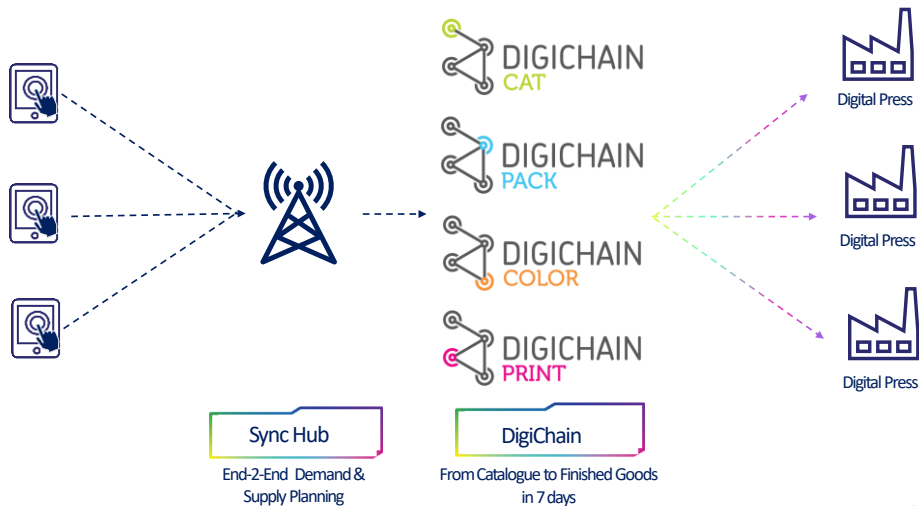
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## Perfect data + fast response = Success at Retail

**Agility** is The ability to **See** and The capability to **Act**



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## 2020: What we meant with «Industrial Ink-Jet Printing»...



### Digital Folding Carton Printing:

- 7c @ 70mpm
- 24/7 (4 shift) operations
- > 400'000rm/week/press
- 10'000 liter p.a.
- < 6% unplanned downtime

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## Digitaler Zusatznutzen im Verpackungsdruck



1. Use Case A: Digitaler Faltschachteldruck bei Philip Morris International

**2. Use Case B: Digitale Bedruckung von Tubenlaminat**

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**BUT ... Standard UV Ink Jet Ink faces Design Limitations**



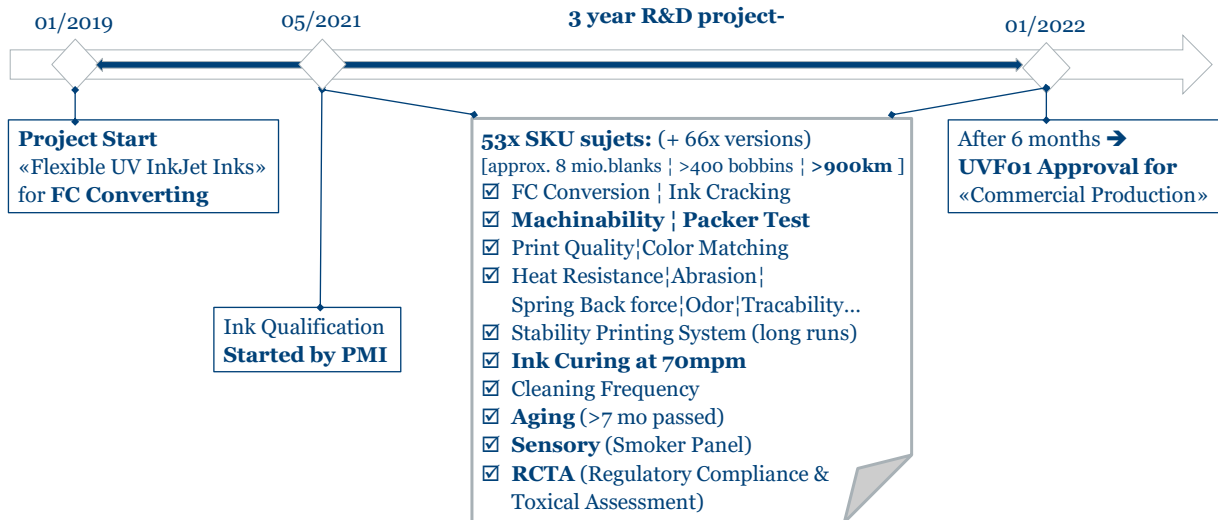
How to overcome Design Limitations because of **Brittleness** of cured UV Ink Jet Ink?



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«Flexible Ink» Co-Development Project PMI|HDM



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«Flexible Ink» Co-Development PMI;HDM



**Modified Labelfire Press & Prepress:**

- Reduced Droplet Size  
(Prinect w/ volume based color management)
- UV LED Curing
- Inert Curing Conditions  
(<500ppm; 510L/min)
- «Chemical resistant» Ink supply system
- ~~No Booster or Primer needed @70mpm~~



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**Innovative «Flexible Ink System» UVF01:**

Choice of Ingredients to meet requirements of:

- **Swiss Ordinance** edition (01.05.2017) - lists A & B
- **REACH** - EC No. 1907/2006
- **RoHS** – Directive 2011/65/EU – and Directive 2015/863/EU
- Formulation according to **EuPIA** exclusion policy
  
- Production according to **GMP guidelines**
  
- No confirmed Food Safety for labels  
(overall migration trigger values are not met)

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Feasibility Study „Flexible Ink 4 Tubes“

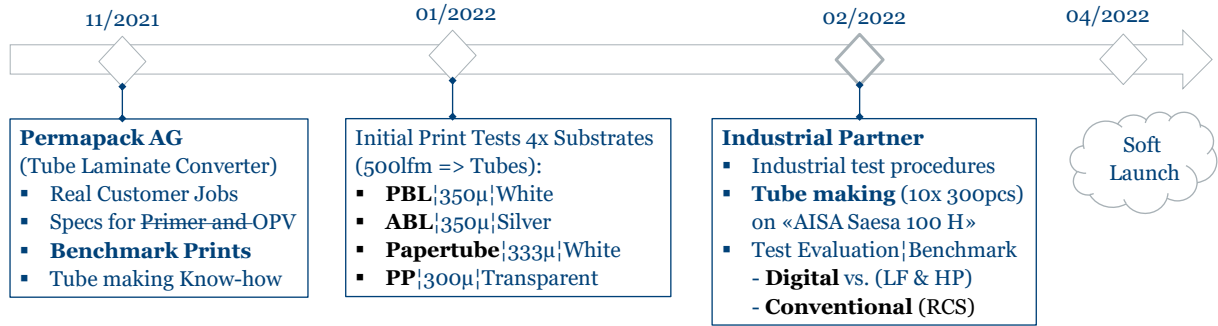


**Introduction**  
Martin Leonhard



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Feasibility Study «London» | Flexible Ink on Tube Laminate



**Actual Status:**

- Business Case|TCO Calculation
- Verification Solution Space (Laminate|Pouches|Sachets)
- Go-to-market & Demo Facility
- Cooperation w/ Industry Partners ...

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Comparison Gallus Flexo to Gallus Digital| **Test Results** (as of Feb .22)



**Test Set-Up:**

- **Digital** Gallus Labelfire Prints @ **50mpm** compared to **Conventional** UV Flexo Gallus RCS Prints
- 2x REAL customer jobs |4x tube substrates **w/o primer** | 10x 300 = 3'000 tubes produced (50mm|200ml)

	Abrasion	Adhesion Tape Test	Scratch Test	Water Crease Test	Aceton Test	Aging 1 5x 180 degree	Aging 2 10x sharp edge
<b>PBL</b>  350µ  White Gallus Labelfire	1 –very good	1 –very good	1 –very good	1 –very good	1 –very good	3 3	1 –very good
<b>ABL</b>  350µ  Silver Gallus Labelfire	1 –very good	1 –very good	1 –very good	1 –very good	1 –very good	2 3	1 –very good
<b>Paper</b>  333µ White Gallus Labelfire	1 –very good	1 –very good	1 –very good	1 –very good	1 –very good	2	1 –very good
<b>PP*</b>   300µ  Trans Gallus Labelfire	1 –very good	1 –very good	1 –very good	1 –very good	1 –very good	4	1 –very good

\*PP substrates are UV radiation sensitive: will become brittle with too heavy UV radiation dose => application development required

10mo aging passed!

**DIGITAL Print Quality, Resistance and Machinability is comparable to Flexo.**

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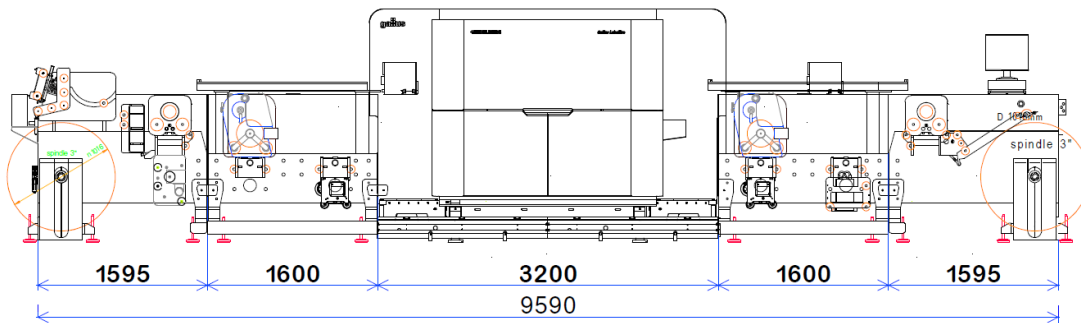
Gallus Demo Tubes „PICS“ – only seeing is believing...



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Reference Configuration Labelfire «Tube-Edition»



- 8c DPU (flexible Ink)
- 3x Corona
- 2x Flexo Print Unit
- 2x UV LED Curing
- Nitrogen Supply to be provided by customer

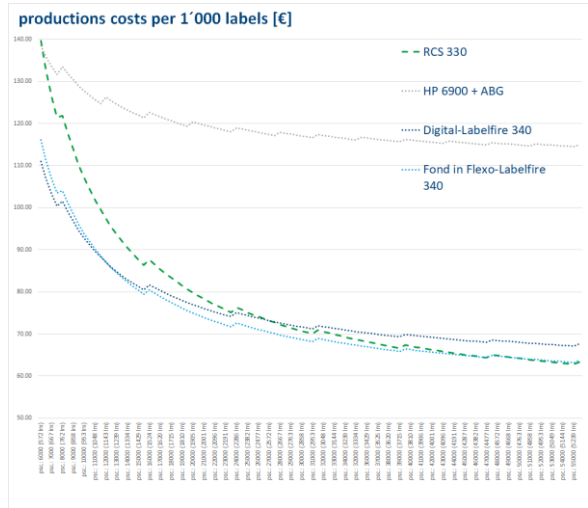
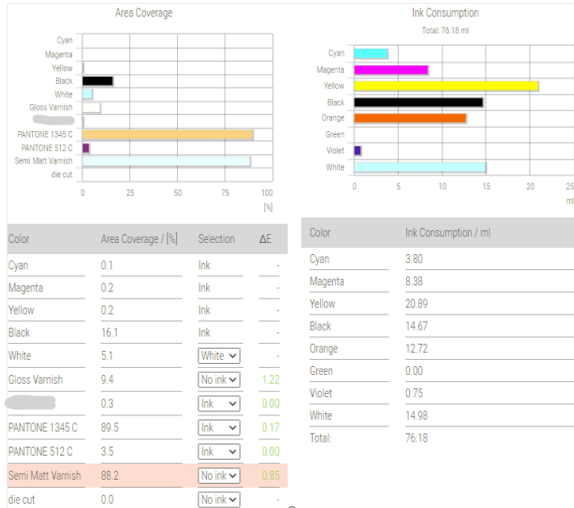
**25m** Webpath Un- to Rewind  
**0m** Waste "Brand Change" (Job Container)  
**15m** Waste "Brand Change" (Digital only)  
**20m** Change over – new substrate  
**50m** Change over – (Digital & 2-4x Flexo)

"Budget Price" Labelfire @ EUR 1'950k  
 UVF01 @ 73 €/liter (ex-works)

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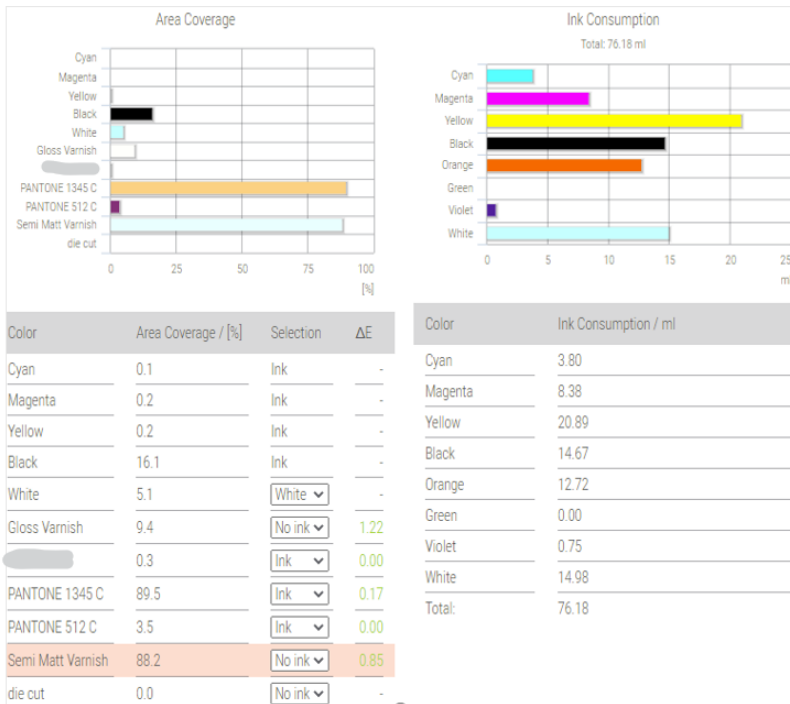
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«Show me where the money is!»  
TCO Calculations.... Example A



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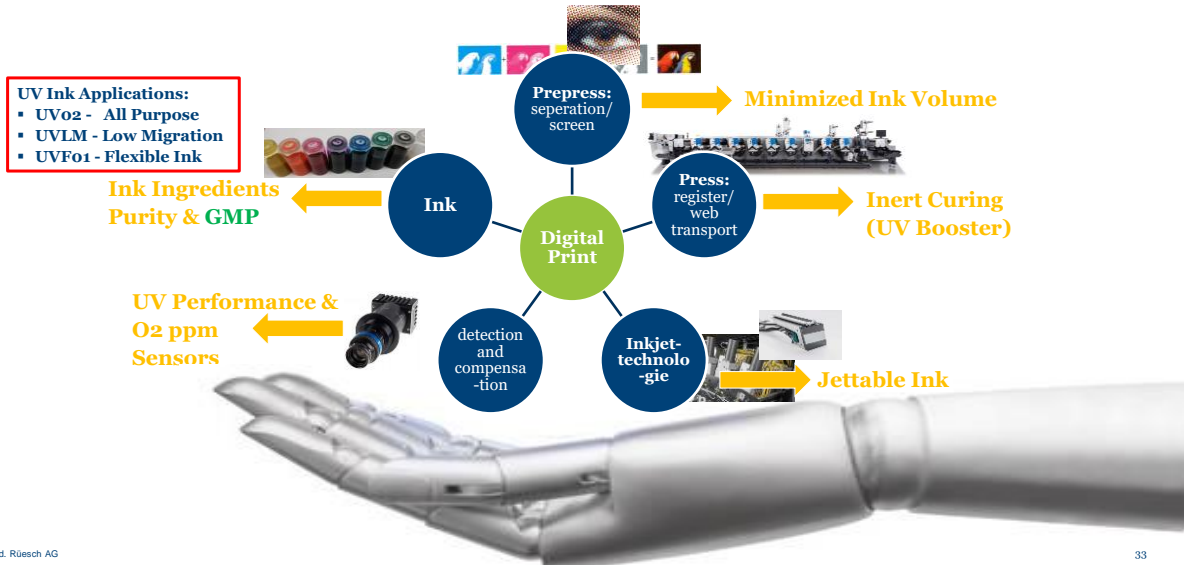
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Example A

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# From A to Z Digital Packaging Solutions from a Single Source



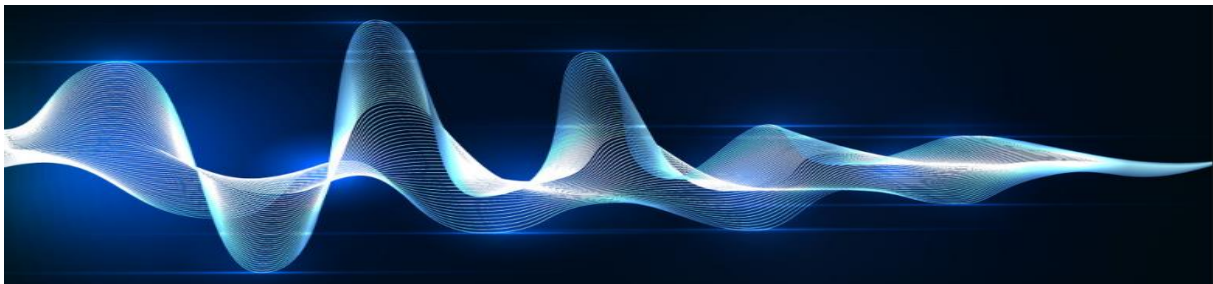
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