

The Power of Pixel

Digital Signage in an Experience Economy





invidis

- is a Munich-based boutique consultancy
- offers worldwide leading digital signage consulting services
- publishes invidis.de - the leading German-language news platform
- provides digital architecture professional services to brands and retail designers
- analyses the digital signage industry and shares the insights in form of the invidis yearbook annually
- founded and co-organizes the worldwide leading digital signage event series (DSS - Digital Signage Summits)
- offers strategy and management consulting to enterprise clients, suppliers, investors and a wide variety of other businesses
- was founded 2006 and is led by Senior Partners Florian Rotberg and Stefan Schieker



Infocomm India 2024

The Power of Pixels

Mumbai | 26 October 2023

ELLA MAI
HEART ON
MY SLEEVE

LISTEN IN SPATIAL AUDIO

amazon music

Invidis Logo 40

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INDIA



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The Pulse

Display Market Data 2022 Digital Signage Business Climate Index

invidis keynote Infocomm India 2023



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Source: © 2023 Futuresource
2022 Market in Units / Value in EUR (Professional Screens >32")
YoY: 2022 vs. 2021
Preliminary data for Q4 2022

Strong EMEA Growth

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2022
Preliminary

Global Units

7.7m | YoY +12%

Global Value

18.9bn | YoY +17%

EMEA Units

📊 25% | YoY +23%

EMEA Value

📊 23% | YoY +25%

futuresource
CONSULTING

invidis
CONSULTING

invidis.com

Source: © 2023 Futuresource
2022 Market Share in Units (Professional Screens >32")
YoY: 2022 vs. 2021
Preliminary data for Q4 2022

EMEA

#1.9m

YoY +23%

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Nordics
11% | YoY +23%

Rest of Europe
11% | YoY +12%

PL
3% | YoY +28%

DE AT CH
16% | YoY +9%

BE NL LU
8% | YoY +15%

UK IE
14% | YoY +27%

FR
11% | YoY +26%

IT
10% | YoY 76%

Rest of EMEA
10% | YoY 14%

ES PT
6% | YoY +32%

2022
Preliminary

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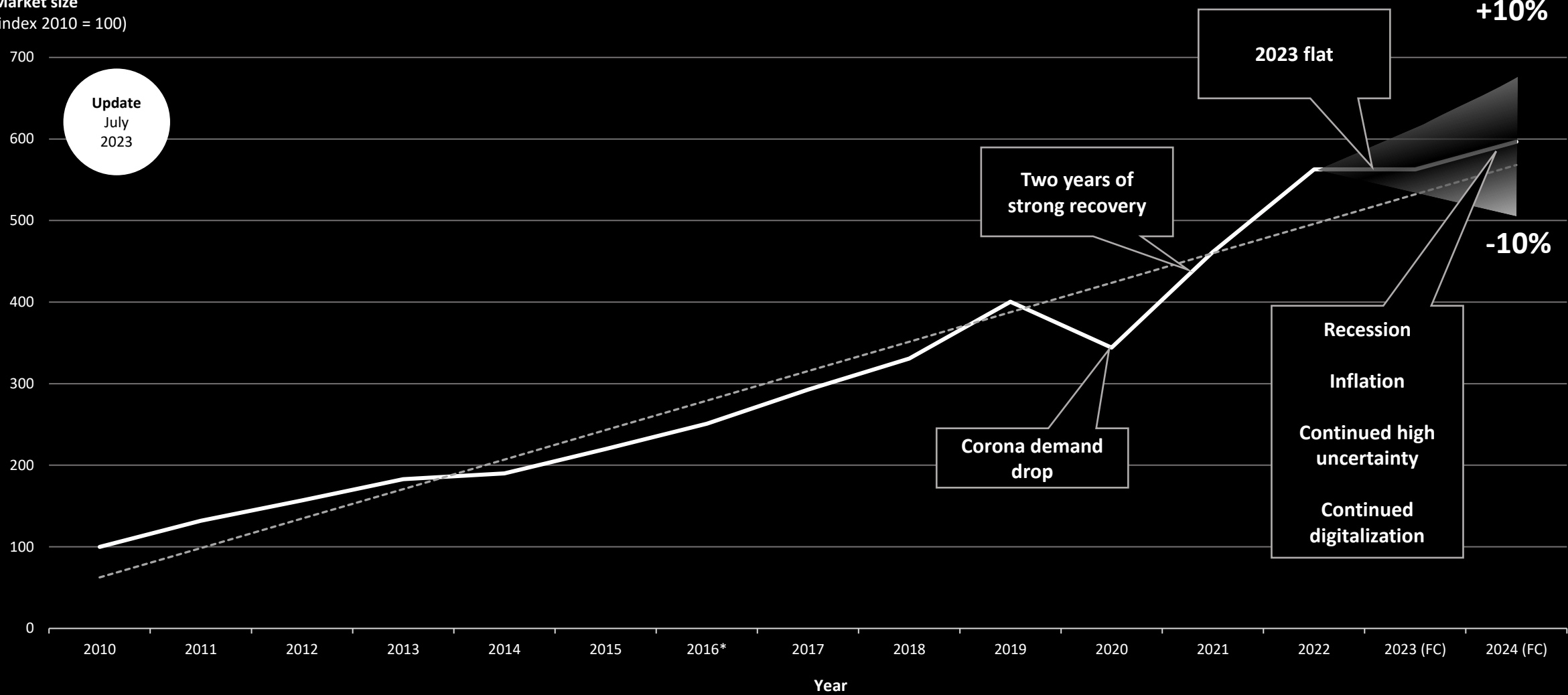
Vertical Outlook



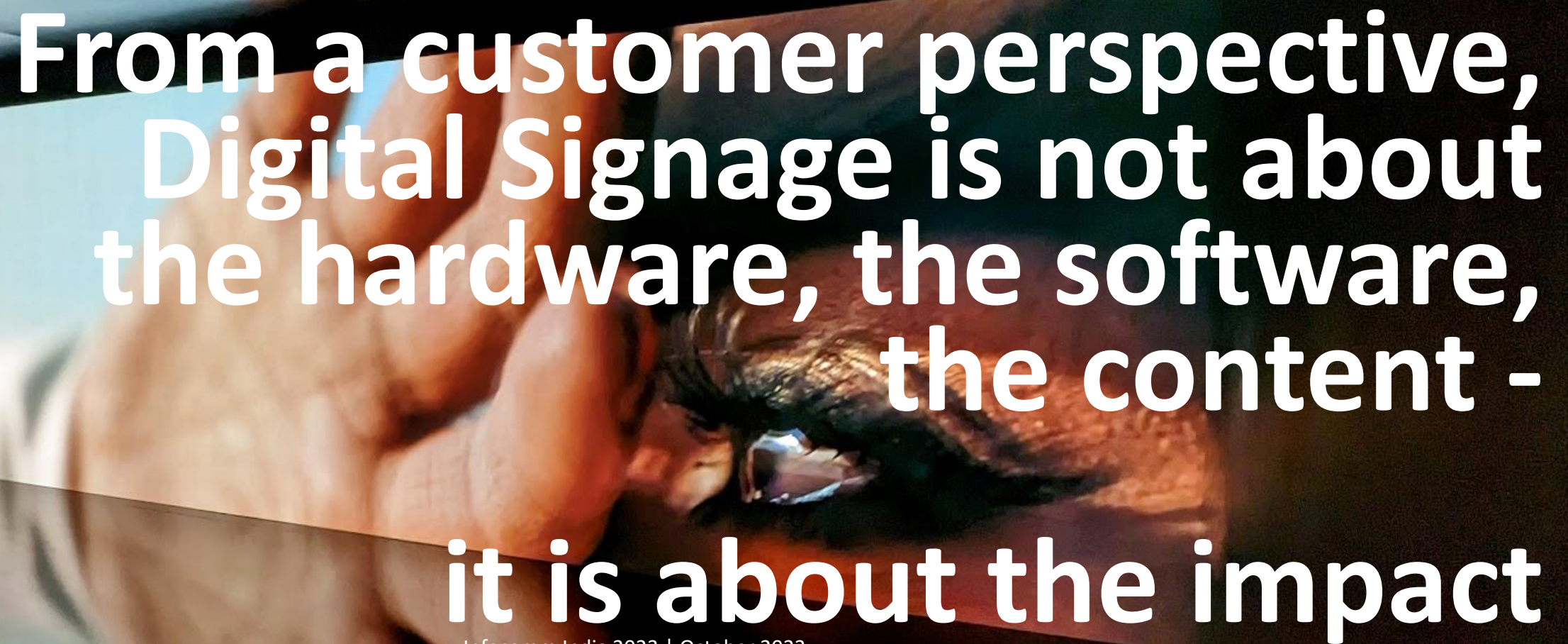
EMEA | Spring 2023

Non-Retail	Education Digital Classroom ▼	Hospitality Hotels & QSR ▲	Industrials Shopfl.. Dashboard ▲	Leisure Museum & Entert. ▼	Media DooH ▲	Re. Estate Corp. Campus ●	Utilities EV Charging ▲	Transport Airports & Stations ●	Workplace Office ●
	Auto Automotive Retail ▲	Beauty Drugstores ●	C-Stores Convenience St. ▲	Deptmt Department Stores ▼	Discount ●	DIY Home Improvement ●	Electrnics Electronics Stores ▼	Fashion ▼	Finance Banking & Insurance ▲
	Fueling Forecourt ●	Grocery Supermarket ▲	Home Liv Furniture Stores ▼	Luxury Fashion ▲	Malls Shopping Center ▼	Online eCommerce Stores ●	Specialty Oth. Specialty Stores ▼	Telcos Telco Shops ▼	Fall Outlook EMEA JAN 2023

Market size
(index 2010 = 100)



invidis DS Market Outlook

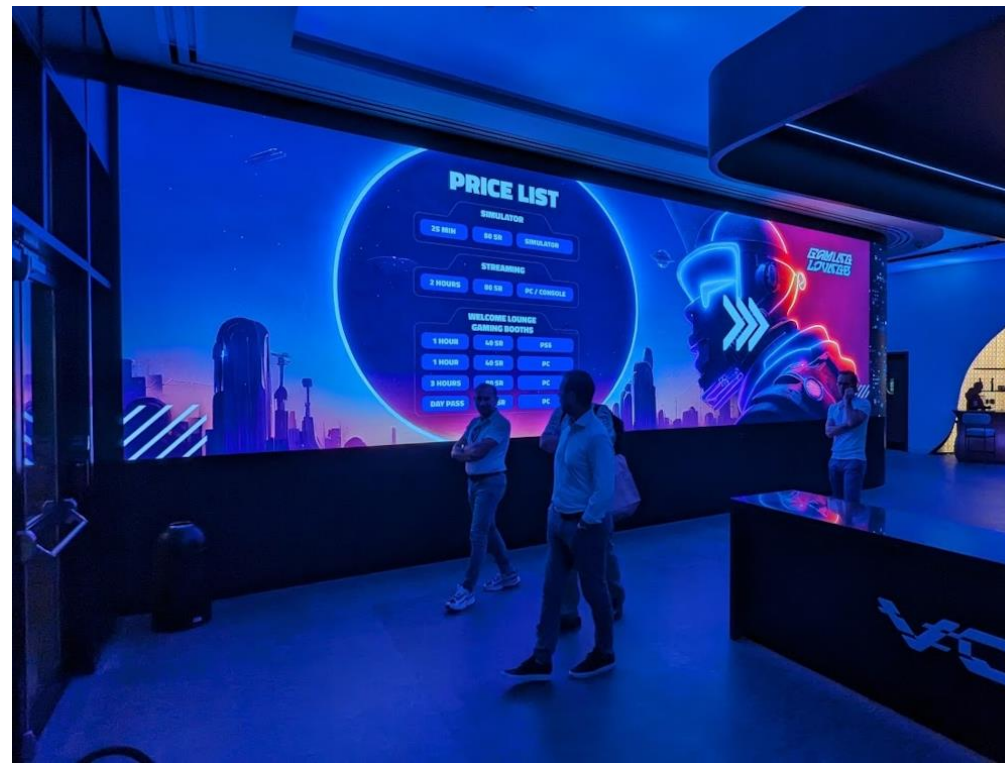
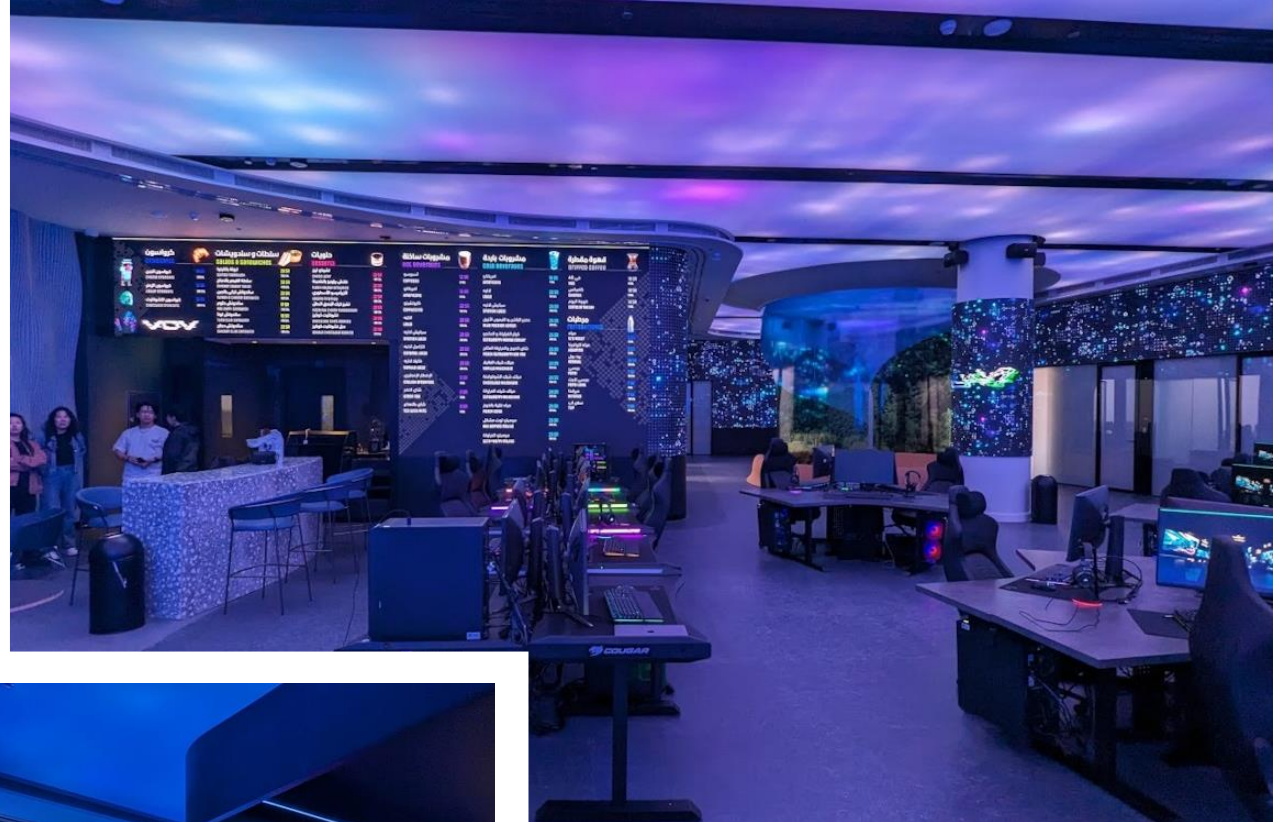
A person is seen from the side, looking intently at a large digital display. The display shows a close-up of a person's face, possibly a woman, with a focused expression. The background is dark, suggesting an indoor setting like a conference or exhibition. The text is overlaid on the image in a large, white, sans-serif font.

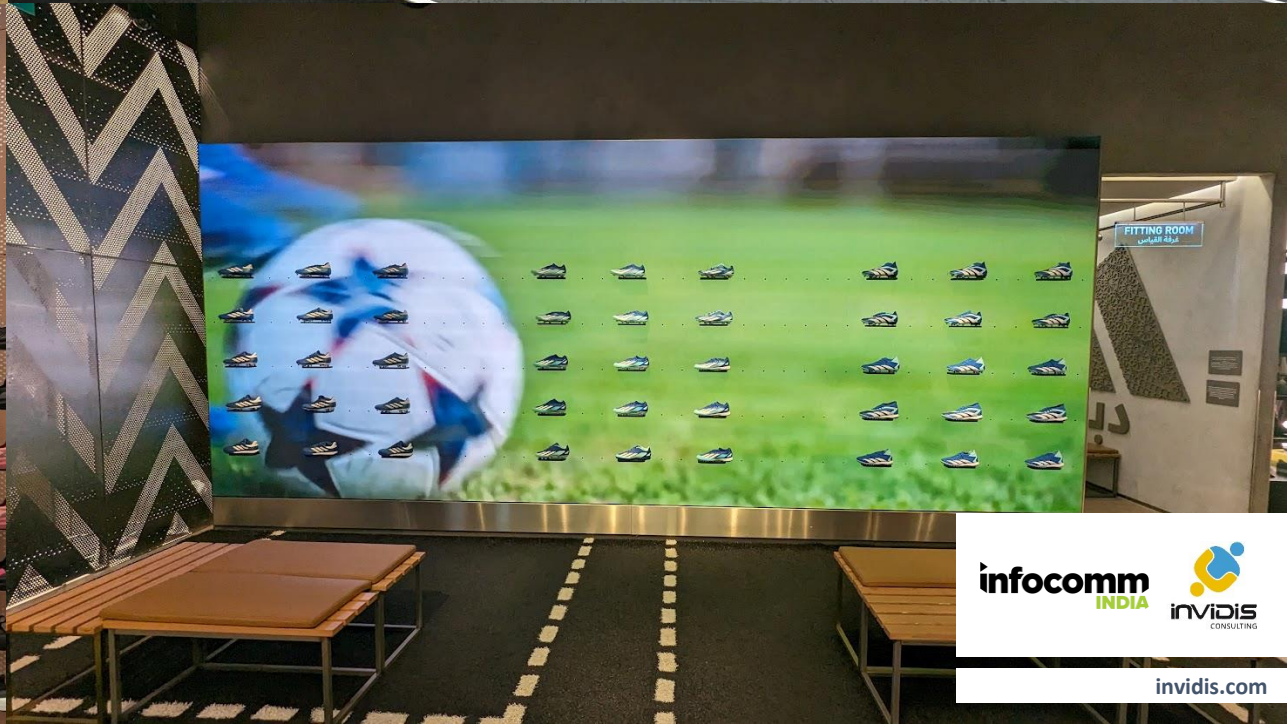
**From a customer perspective,
Digital Signage is not about
the hardware, the software,
the content -
it is about the impact**

Infocomm India 2023 | October 2023

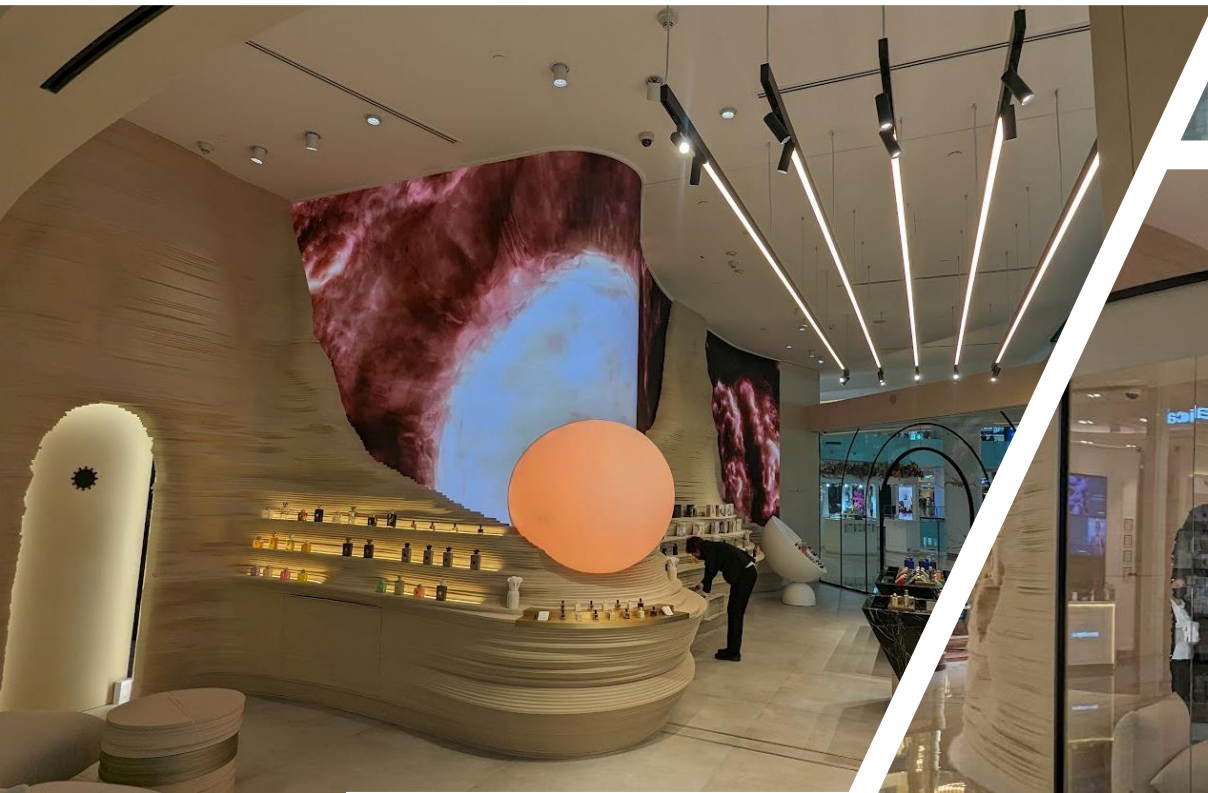


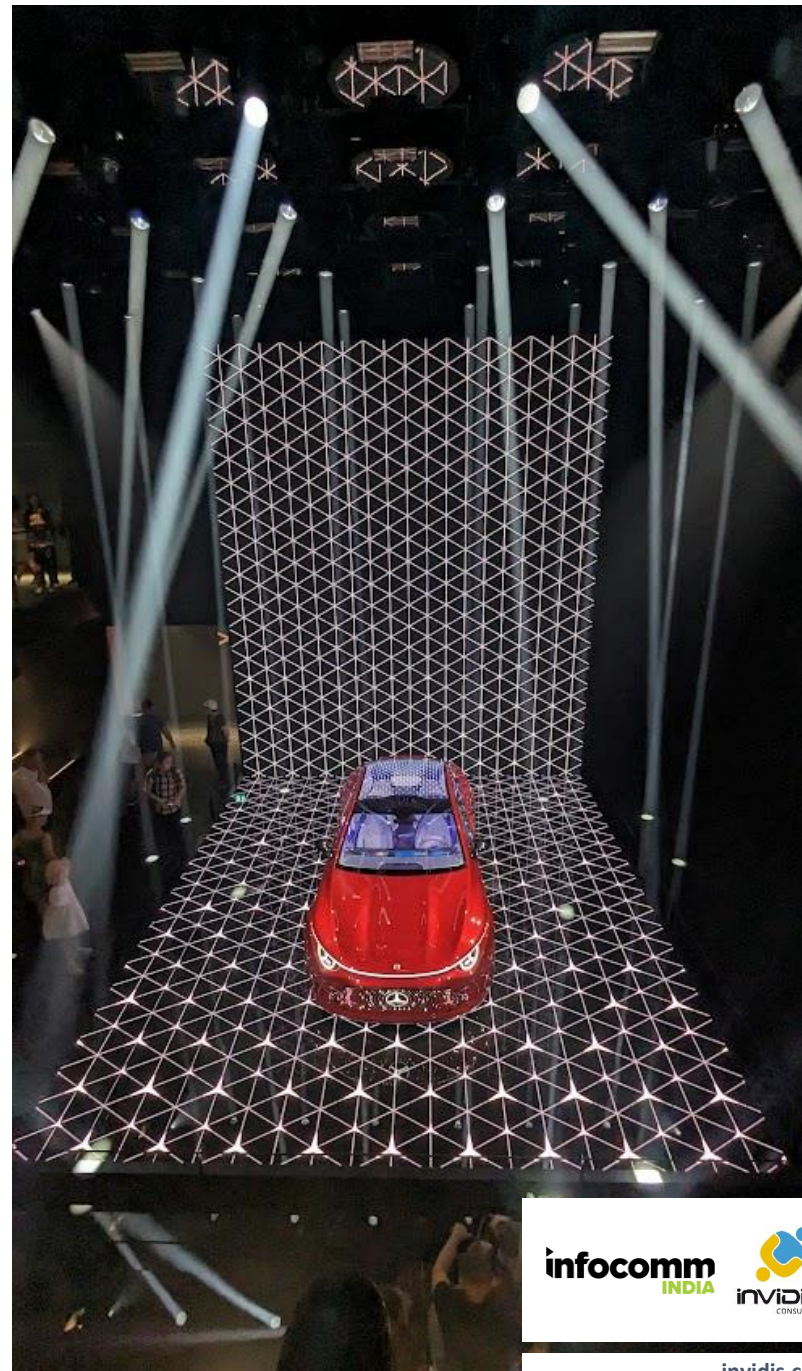


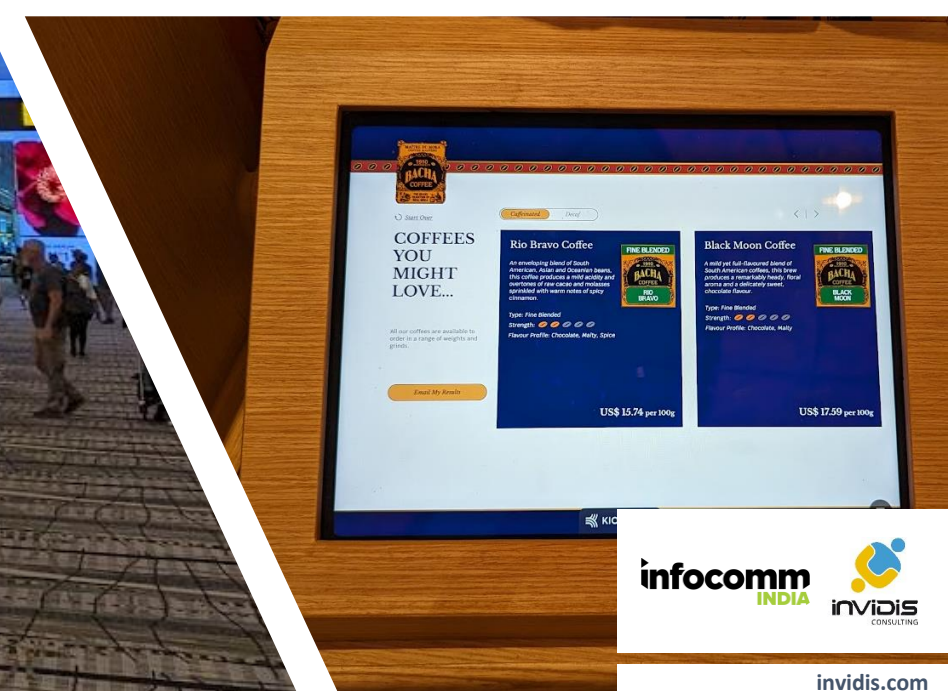
















MONCLER

BALMAIN
PARIS



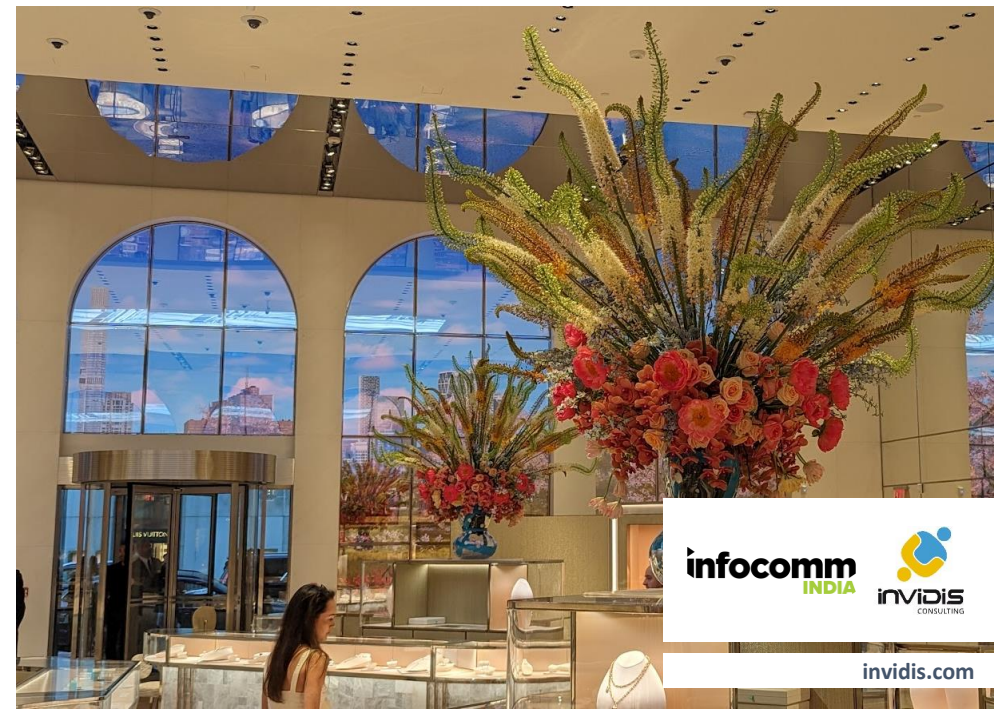
spade

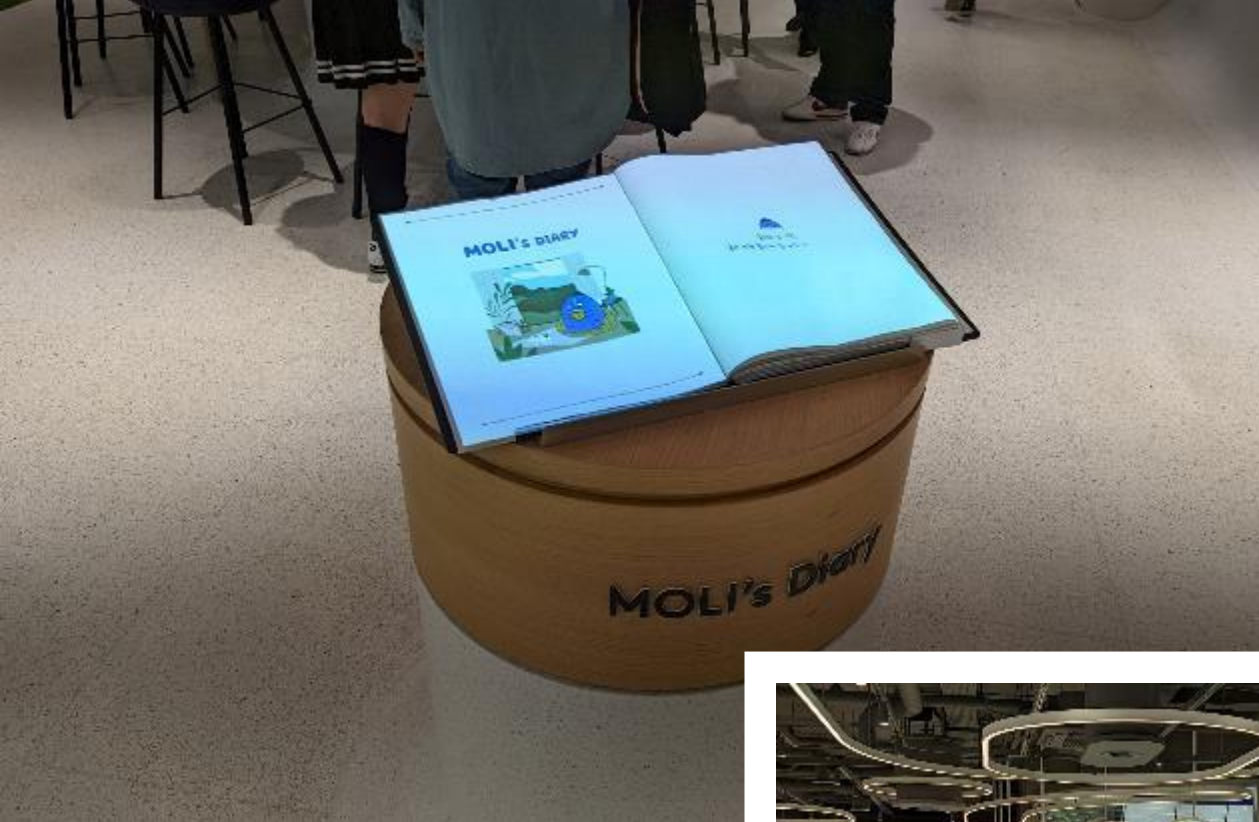
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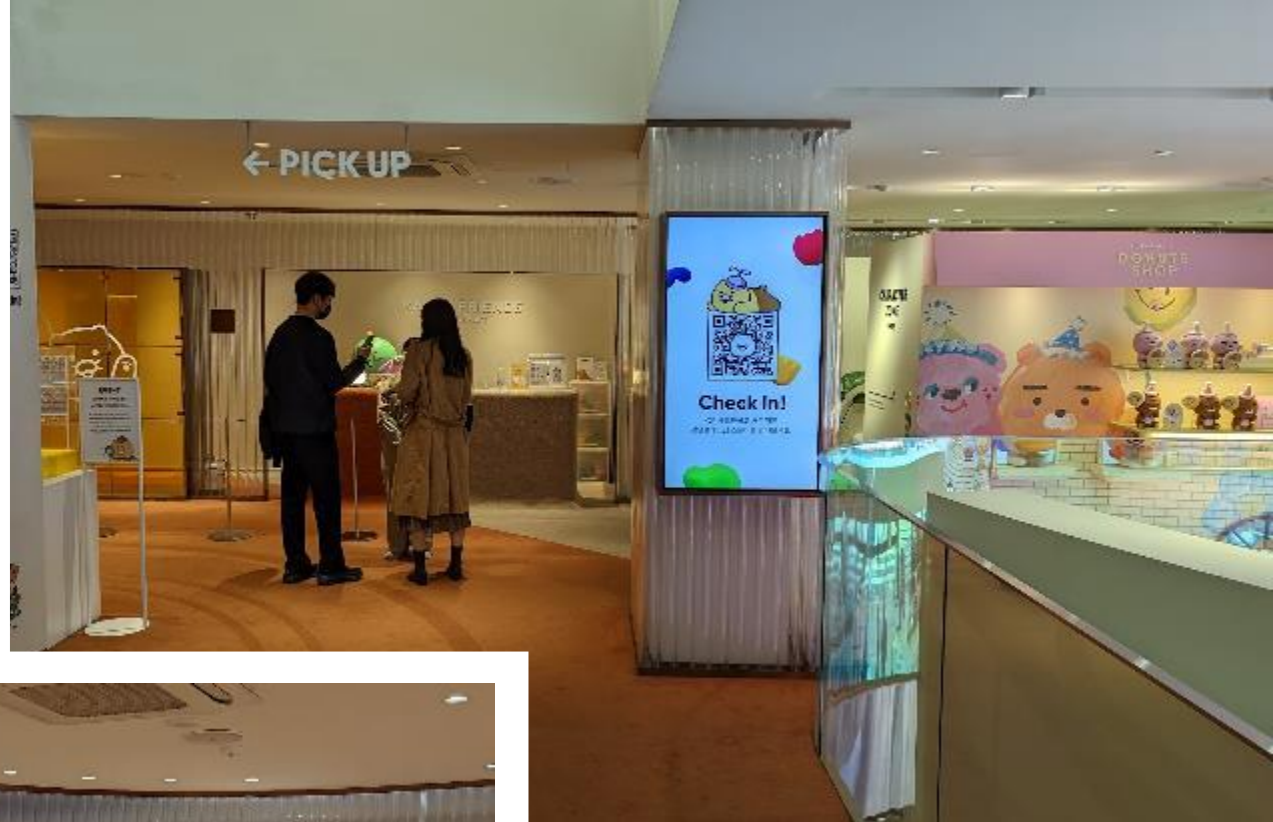
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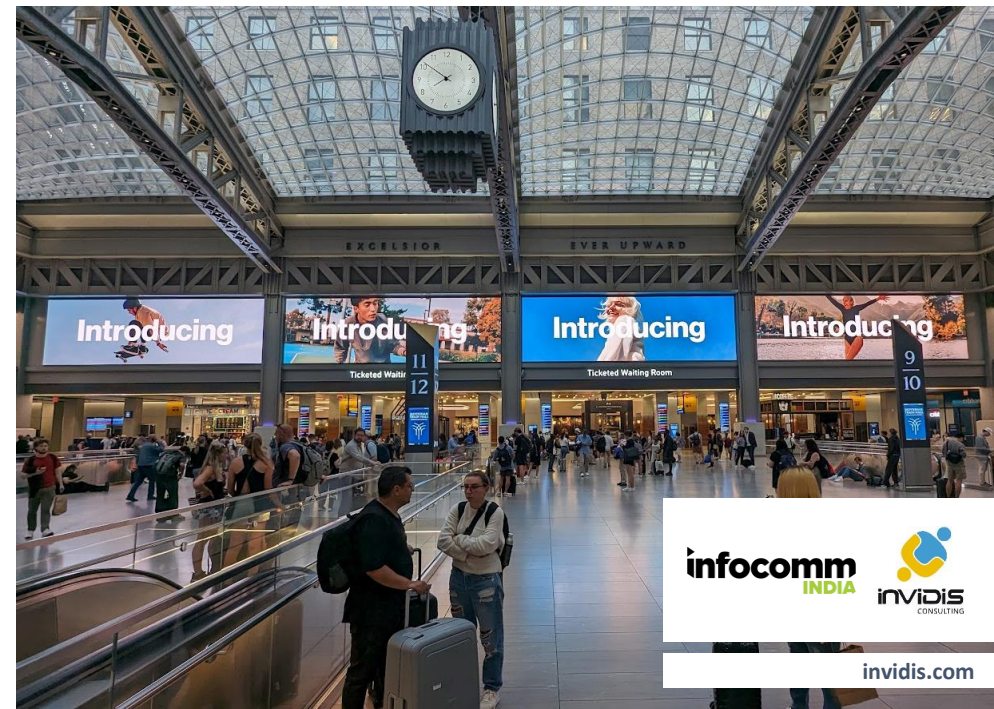
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ORCHARD

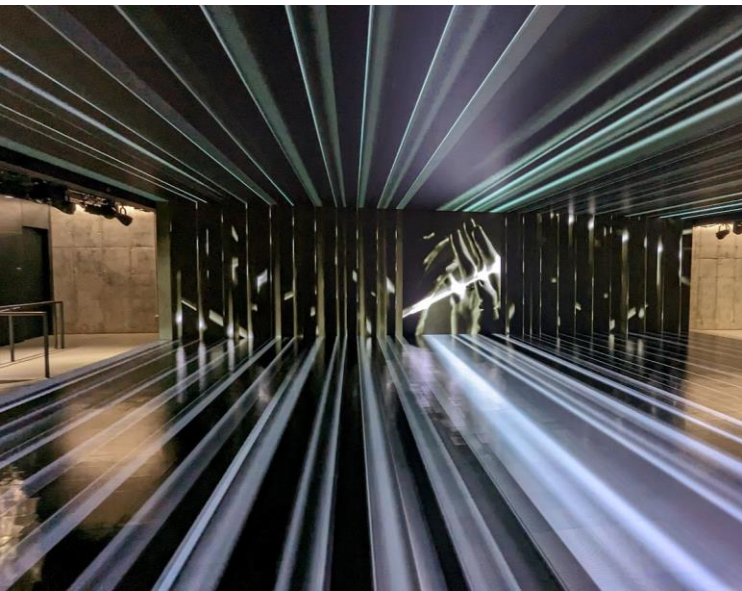
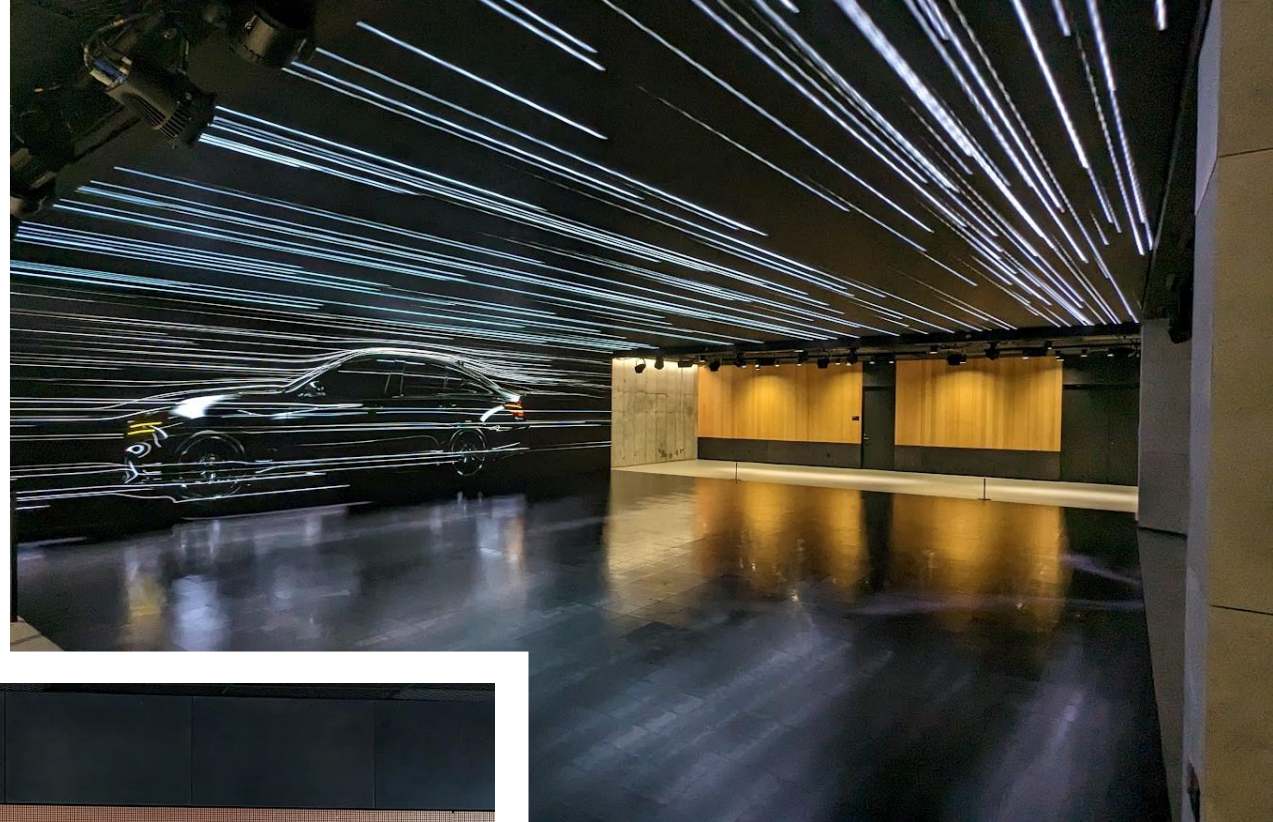
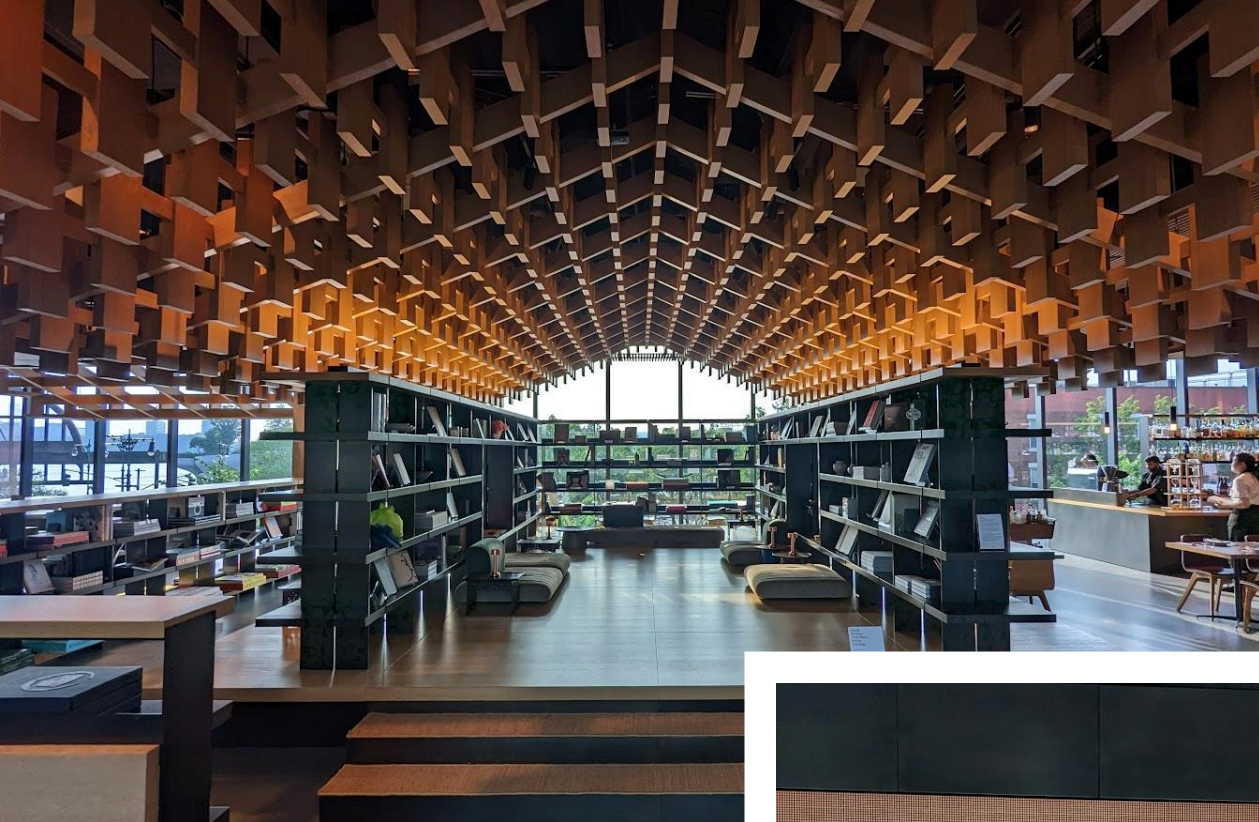


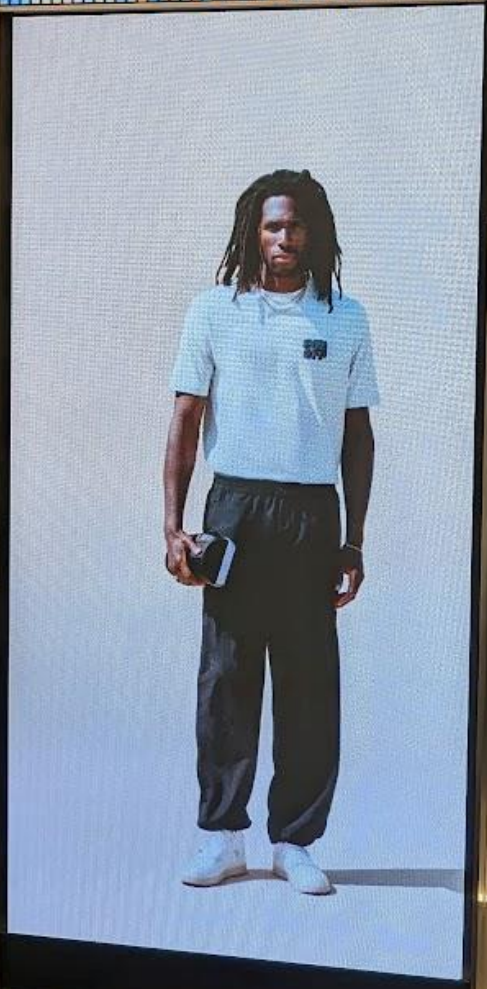


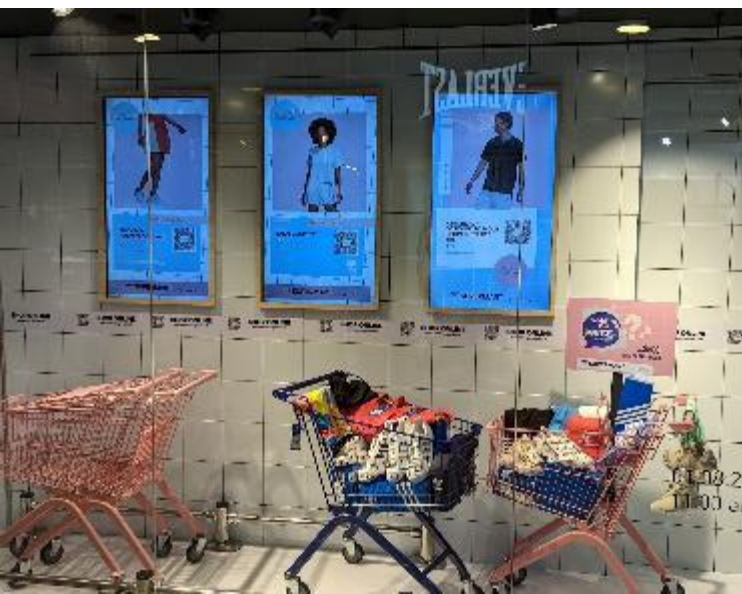
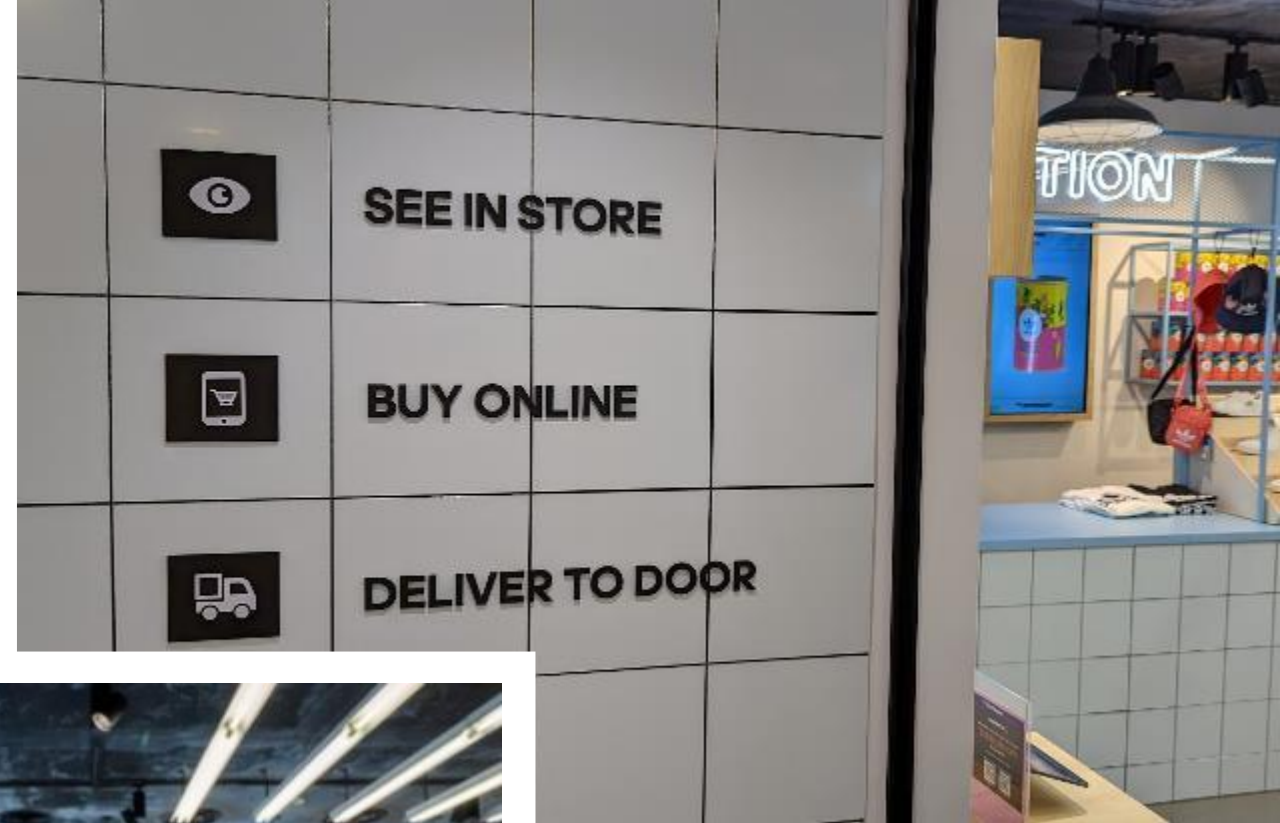














ACCELERATE TO NET-ZERO

THE LINK



Digital Poster (DP)

- Simplified Signage
- Highly scalable
- DooH
- Retail networks
- Corp. Communication



Digital Signage (DS)

- Full Digital Signage
- Data Driven
- Interactive (optional)
- Shop-in-Shop



DS Experience Platform (DSXP)

- Mainly Full Digital Signage
- Data Driven
- Sensors
- Brand Center
- Flagship
- Many touchpoints at **few locations**



Digital Experience Platform (DXP)

- Cross-channel, full **interoperability** across entire customer journey
- Brand Center
- Flagship
- Many touchpoints at many locations **on many channels**

Business Critical



v4.0
FEB22

Trends shaping the industry

Consumer driven
Brand driven
Integrator driven



Today at Apple

Health & Fitness Walk:
Staying Motivated
Co-created with
Jeanette Jenkins

Ask about joining a session

Touch vs Voice

Owned vs Shared

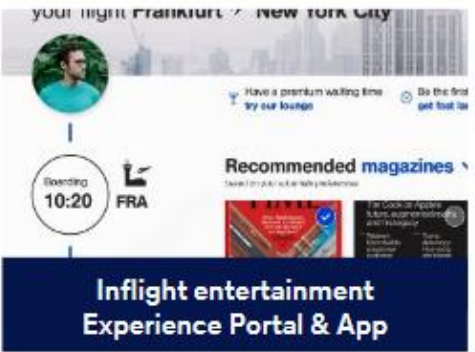
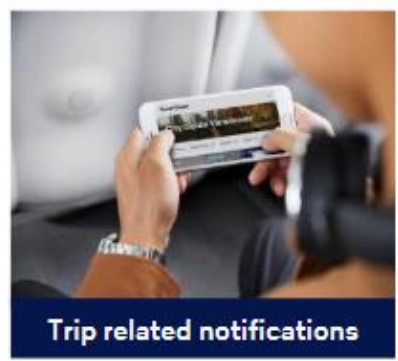
Celebs vs Influencer

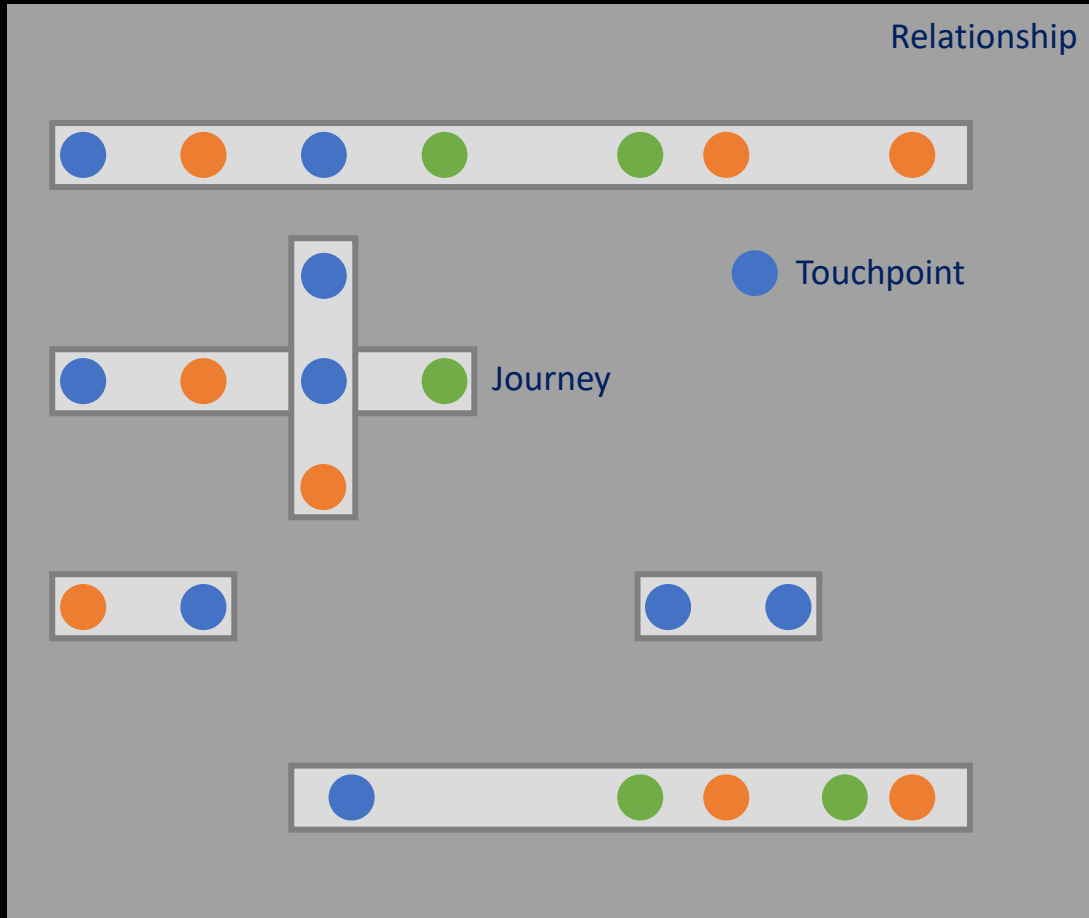
Still vs Video

Landscape vs Portrait

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FAANG and BAT are driving consumer behavior and expectations





- ① **Touchpoint:**
 - UX design is key
 - Touchpoints can be digital, physical, human, or a mixture
- ② **Journey:**
 - Journeys serve a customer purpose, e.g. entertainment, buying, problem solving
 - Consumers self-select their journey
 - Touchpoints in a journey need to be linked – the kit can be design, data, etc.
- ③ **Relationship:**
 - Totality of all interactions with one customer
 - Can create “fans”, “neutrals” and “negatives”
 - Different expectations and levels of goodwill for bad journey experiences



Engaging Experiences

Concepts | Content | Creation

Luxury Retail 2023-2025

Enhancing instore customer experience is top priority

+36% Increase in investment in instore tech

CONNECT
YOUR HOME

FIND CONNECTION

ON EVERY DEVICE,

IN EVERY ROOM,

Trend Modular Digital Design

The most expensive thing
in retail is change

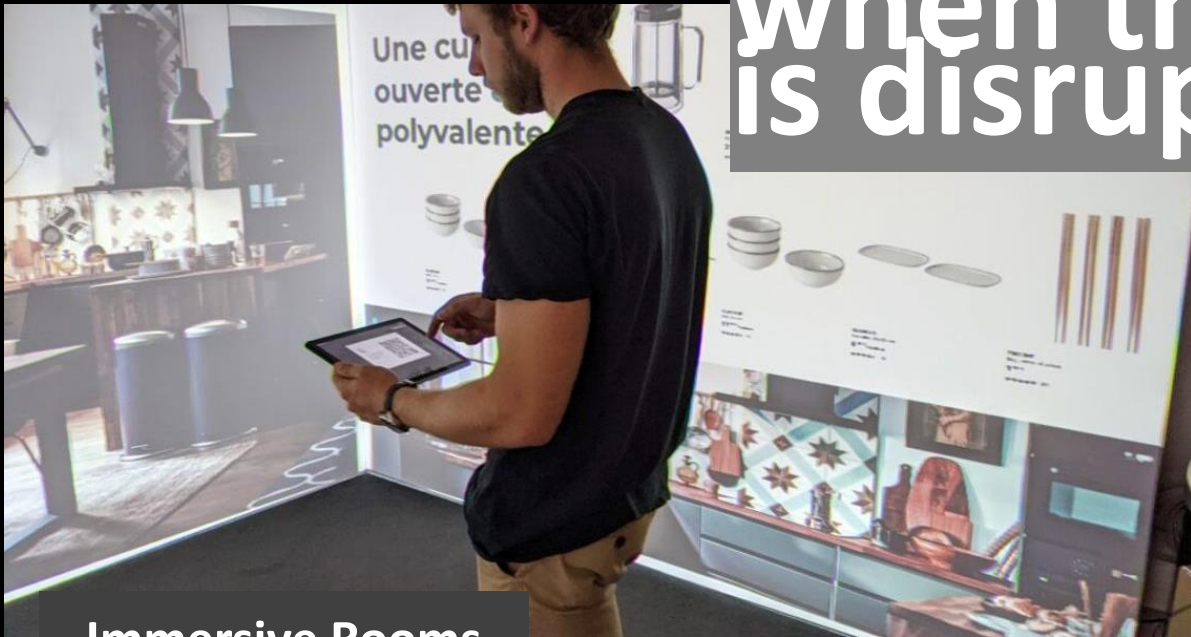
Dalziel & Pow

TO ACTIVATE OUR
AR EXPERIENCE

City Stores



What happens when the disrupter is disrupted?



Immersive Rooms

47% of customers enquiries solved by the chatbot



Digital Signage

More localized Instore Experiences

Digital Signage

Focus on
customer experience ...

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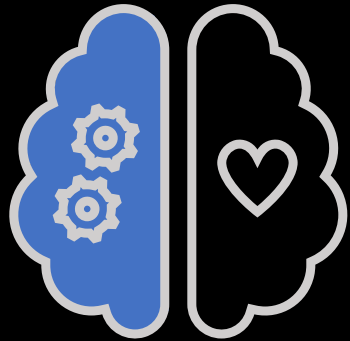
Digital Signage

... and less on
employee experience

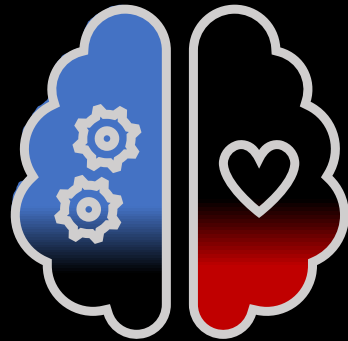


Digital Signage

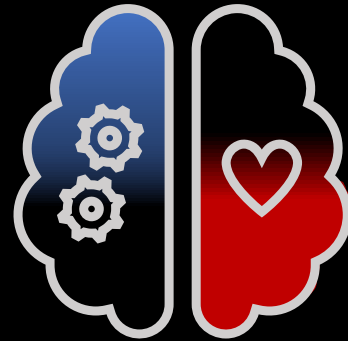
The fastest way for
customers to love your brand
are employees loving their job



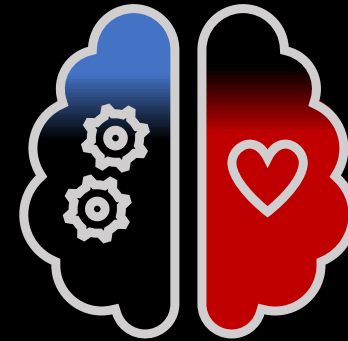
Information



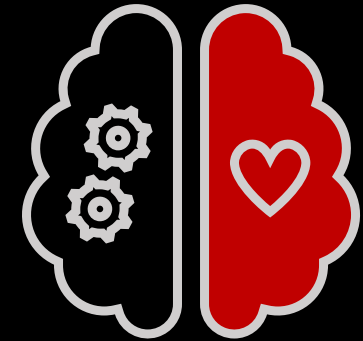
Service



Selling



Brand
Marketing



Immersive/Emotional
(Art)

Content Types / Purposes

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The Digital Signage system fails,
the location must shut down

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When is Digital Signage Business Critical?

Departures

Dubai Airports

14:44

المغادرون

Flight No.	Destination	Status	Time	Gate
101	London Heathrow	On Time	17:00	101
102	Paris	Delayed	17:15	102
103	Frankfurt	On Time	17:30	103
104	Amsterdam	On Time	17:45	104
105	Brussels	On Time	18:00	105
106	Madrid	On Time	18:15	106
107	Rome	On Time	18:30	107
108	Naples	On Time	18:45	108
109	Bari	On Time	19:00	109
110	Palermo	On Time	19:15	110
111	Catania	On Time	19:30	111
112	Syracuse	On Time	19:45	112
113	Messina	On Time	20:00	113
114	Cagliari	On Time	20:15	114
115	Alghero	On Time	20:30	115
116	Perth	On Time	20:45	116
117	London Heathrow	On Time	21:00	117
118	Paris	On Time	21:15	118
119	Frankfurt	On Time	21:30	119
120	Amsterdam	On Time	21:45	120
121	Brussels	On Time	22:00	121
122	Madrid	On Time	22:15	122
123	Rome	On Time	22:30	123
124	Naples	On Time	22:45	124
125	Bari	On Time	23:00	125
126	Palermo	On Time	23:15	126
127	Catania	On Time	23:30	127
128	Syracuse	On Time	23:45	128
129	Messina	On Time	00:00	129
130	Cagliari	On Time	00:15	130
131	Alghero	On Time	00:30	131
132	Perth	On Time	00:45	132



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Digital Signage Business Critical



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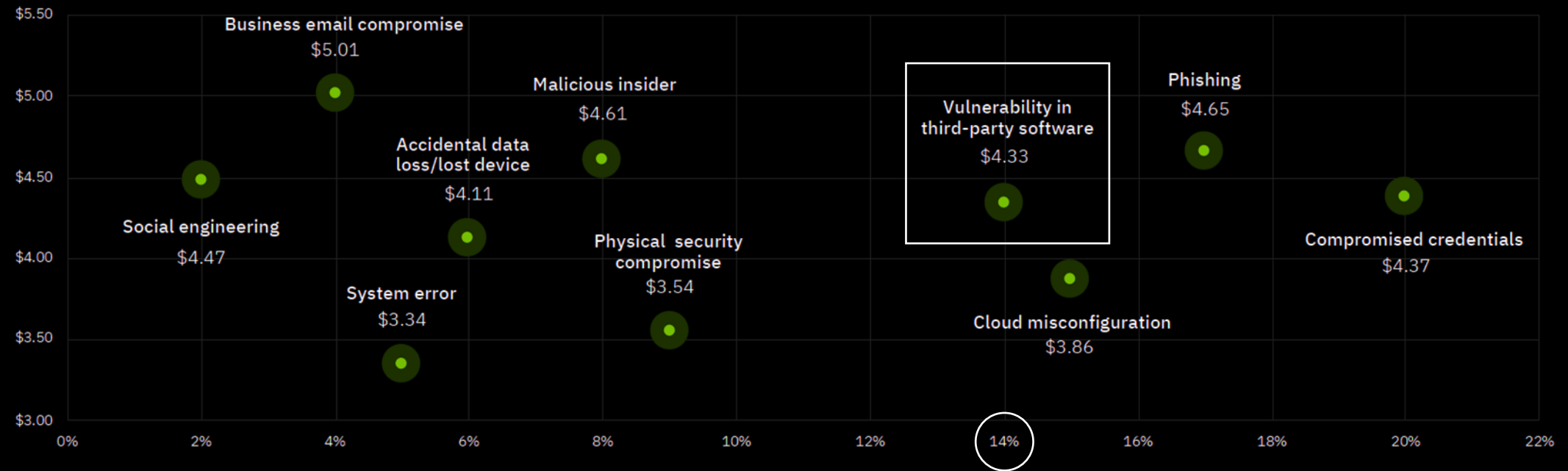
Digital Signage Business Critical

Cyber Security

Samsung European Tizen Summit 2023

Average total cost and frequency of data breaches by initial attack vector

Measured in US\$ millions



Source: IBM Security Cost of Data Breach Report 2021

a beautiful desert sky late in the evening



Generative AI

GenAI

revolutionizes content production





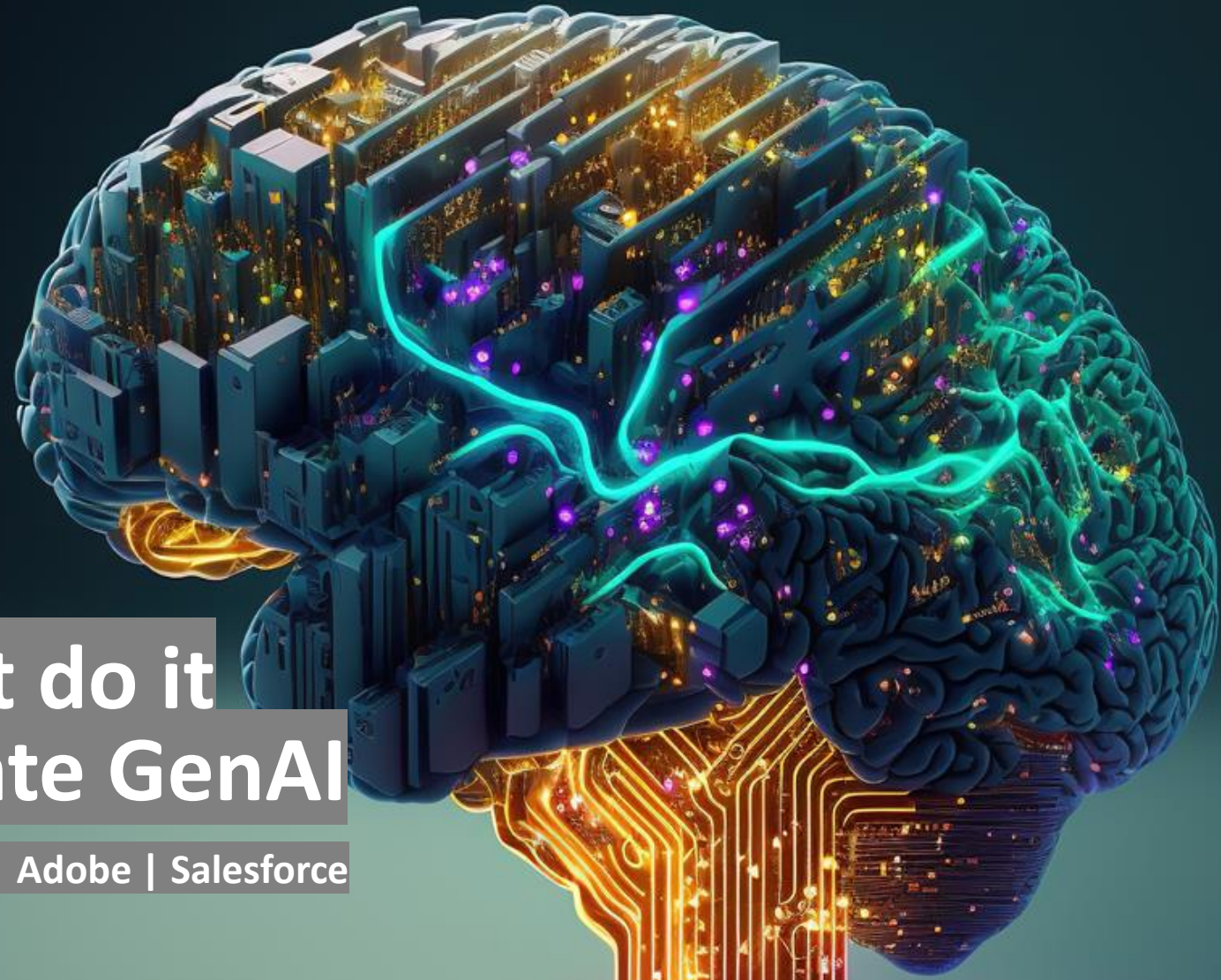
Generative AI

Hype around Firefly
euphorizes Adobe

Adobe Firefly



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Generative AI

From don't do it to private GenAI

Accenture | Adobe | Salesforce

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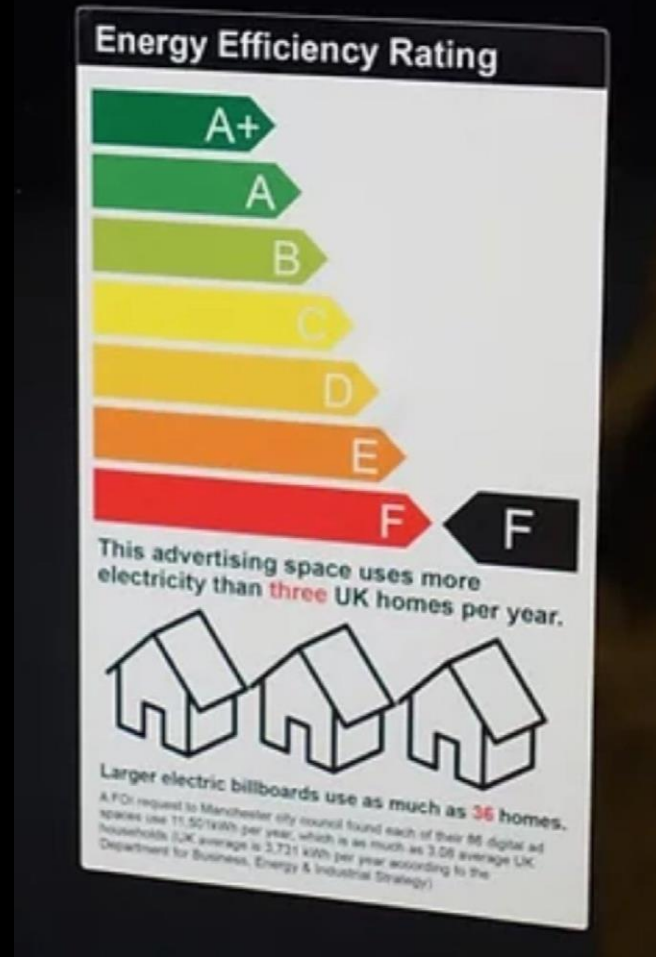
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Digital Signage Trends

Green Signage has become Business Critical

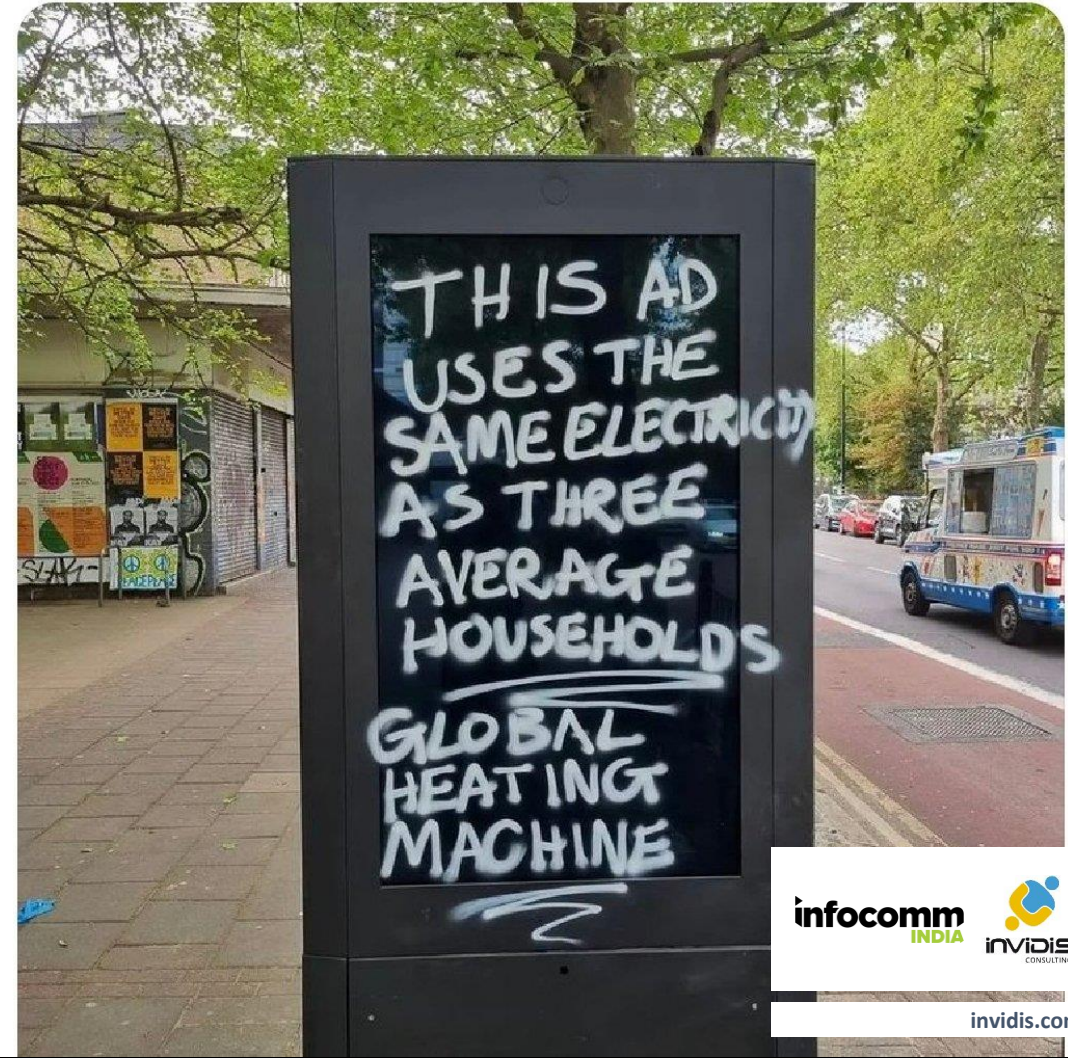
AI generated



Greenpeace UK

@GreenpeaceUK

Can we stop being bombarded by adverts?



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Love Withdrawal?



Green Signage

Corporate pressure to Sustainable Logistics Zero Emission Shipping

Amazon | IKEA | Unilever



Green Signage

Regulatory pressure Climate crisis killed 8k in Europe

Draft

Green Signage

Corporate Sustainability Reporting (CSRD) Reporting required for 50.000 companies by 2025

250 employees | +40m EUR turnover | assets exceeding 20m EUR

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Green Signage

Compensation cost increase by 20x

Price of mandatory carbon credits may rise from USD 11 to above USD 200/t by 2030



PARFOIS

Turn your screens off !



Retail Media

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Instore DooH meets retail data

Already hugely successful business model in eCommerce

- Walmart 2021: 2.1bn USD (0.4% of total revenue)
- Amazon 2021: 31bn USD (6.6% of total revenue)

DooH-based instore brand marketing needs retailer data (3rd party) for smart targeting, unlike flat-rate trade marketing

Trends shaping the industry

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Consumer driven
Brand driven
Integrator driven

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Concept flexibility

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Vertical Solutions

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Roll-out & service cost Managed Services

Service

Hits



1311

104.192.3.74

51.195.91.124

11.244.77.79

Hits

1352



United States

1140



France

652



Luxembourg

616



Germany



Netherlands



Russia

Event	IP	Country	Hits	Service
2023-04-17 14:23:08	104.192.3.74	United States	1352	Managed
2023-04-17 14:23:08	51.195.91.124	United States	1352	Managed
2023-04-17 14:23:08	104.192.3.74	United States	1352	Managed
2023-04-17 14:23:08	51.195.91.124	United States	1352	Managed
2023-04-17 14:23:08	104.192.3.74	United States	1352	Managed
2023-04-17 14:23:08	51.195.91.124	United States	1352	Managed
2023-04-17 14:23:08	104.192.3.74	United States	1352	Managed
2023-04-17 14:23:08	51.195.91.124	United States	1352	Managed
2023-04-17 14:23:08	104.192.3.74	United States	1352	Managed
2023-04-17 14:23:08	51.195.91.124	United States	1352	Managed

A glimpse into the Future

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Generative AI Digital Signage

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Text	Chat GPT DeepL Write
Graphics	Dall-e Stable Diffusion Midjourney
Music	Musi-co Amper Music
Voice	Vall-e
Code	Codex (GPT-3)



Platforms

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FAHU, A, RF, 01.px

IRENA BUILDING

Masdar

FAHU-A-RF-01

DP-FAHU-A-RF.01.01 Exhaust Fan
TH-FAHU-A-RF.01.02 73.5 %RH
TH-FAHU-A-RF.01.03 22.7 °C
TH-FAHU-A-RF.01.04 65.8 %RH
TH-FAHU-A-RF.01.05 24.8 °C
CO2-FAHU-A-RF.01.01 779 ppm
PS-FAHU-A-RF.01.02 25 Pa

Heat Recovery Wheel
Sensible Wheel
DP-FAHU-A-RF.01.04
TH-FAHU-A-RF.01.05
MD-A-RF.02
DP-FAHU-A-RF.01.05
TH-FAHU-A-RF.01.04
PS-FAHU-A-RF.01.01
MV-A-RF.10
AFS-FAHU-A-RF.01.01

Exhaust Air
Fresh Air
Return Air
Supply Fan
Serves Block A-Offices

Supply Air Pressure Setpoint	135.00 Pa
Supply Humidity Setpoint	70.00 %RH
Off Coil Temperature Setpoint	20.00 °C
Supply Temperature Setpoint	23.00 °C
Supply High Temp.Alarm Setpoint	25.00 °C
Supply Low Temp.Alarm Setpoint	8.00 °C
Supply High Humidity Setpoint	70.00 %RH
Supply Low Humidity Setpoint	20.00 %RH

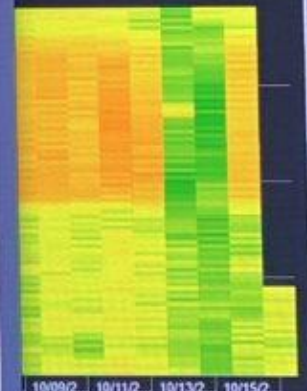
FAHU	S.F D/Siby	HRW	Sensible Wheel	E.F D/Siby
Run Status	Run	Run	Run	Run
Trip Status	Normal	Normal	Normal	Normal

Isolator Status

S.F Duty	S.F Siby	HRW	Sens.Wheel	E.F Duty	E.F Siby
On	On	On	On	On	On

Page > 02 03 04 05 06 07

2. Oct 9. Oct 16. Oct

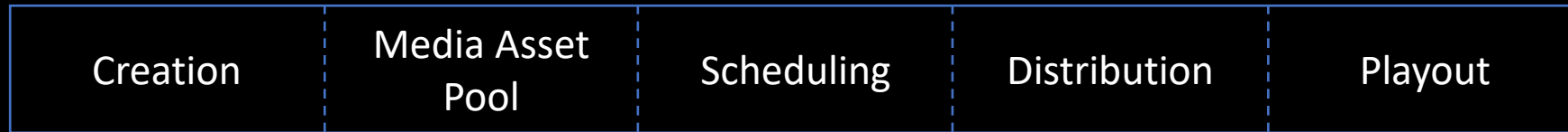


Total (10/15,)

Esri, HERE, Garmin, FourSquare, METI/NASA, USGS | Source: Airbus, USGS, NGA, NASA, CGIAR, NLS, OS, NMA, Geodatastyrelsen, GSA, GSI and the GIS User Community

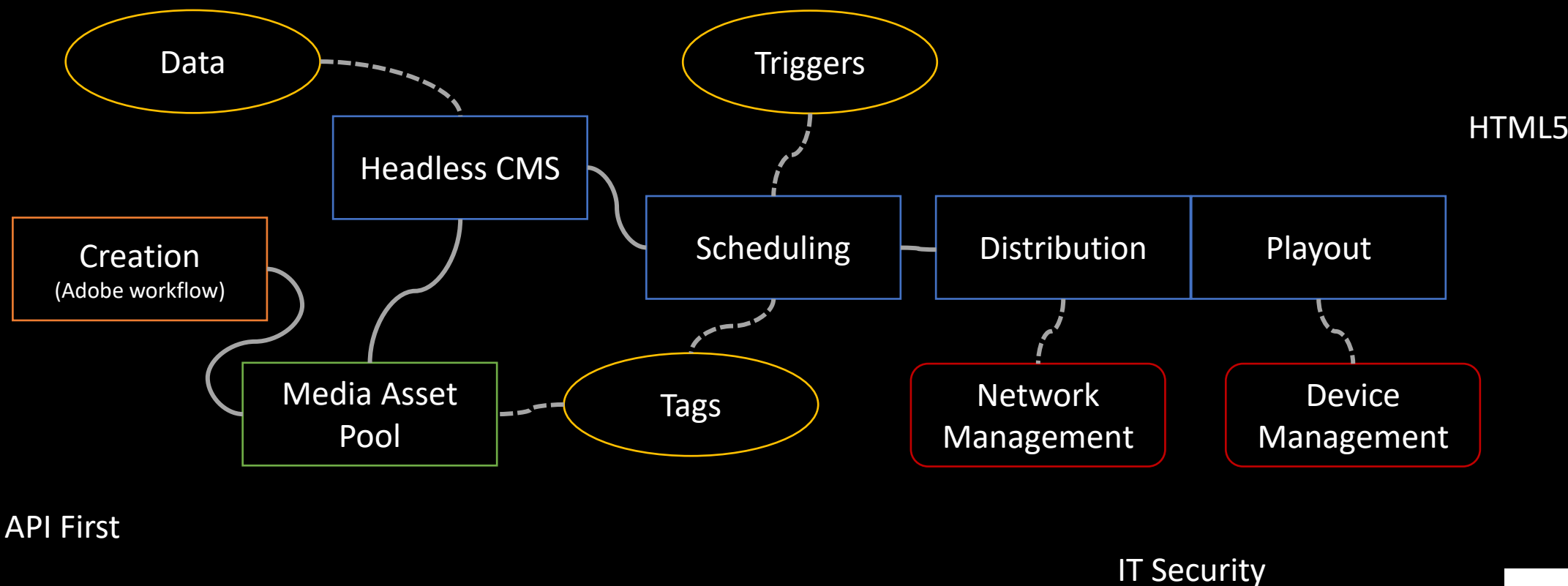
Monolithic Architecture

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Composable Architecture

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Thank you



Florian Rotberg
invidis consulting
Florian.Rotberg@invidis.com

