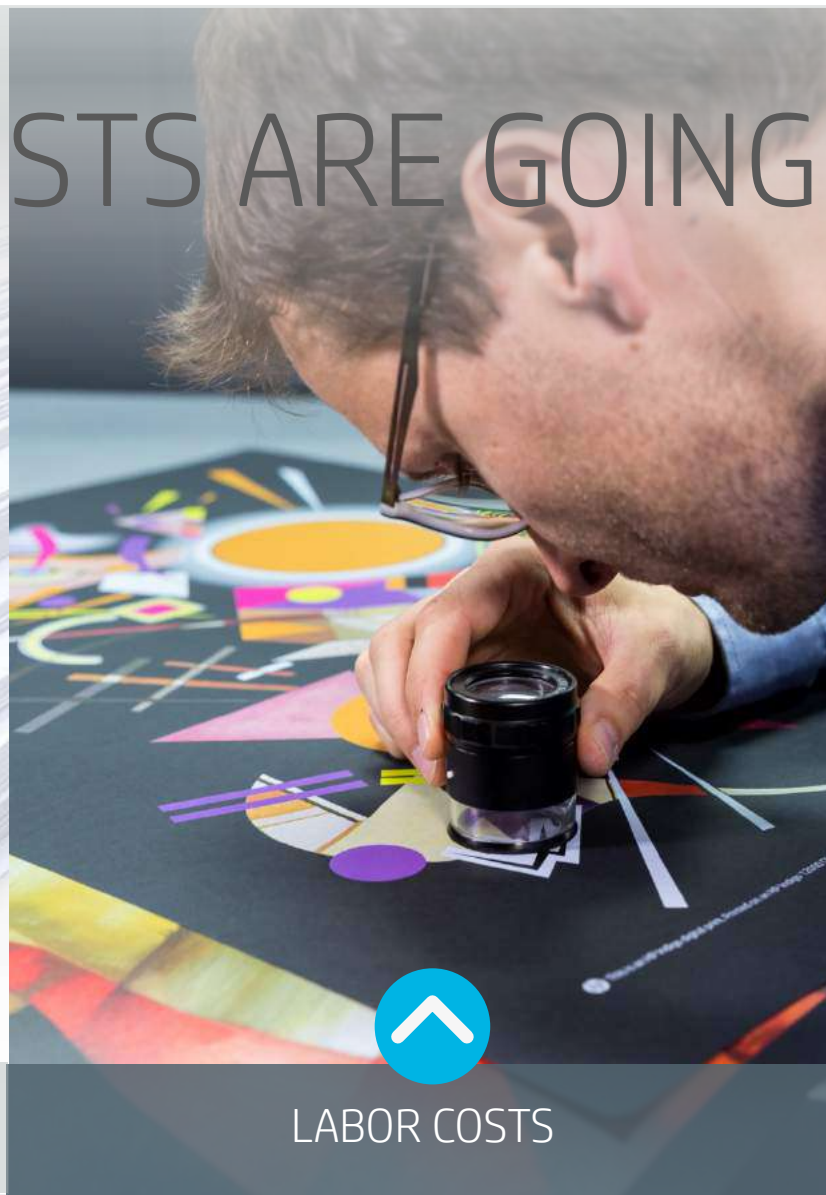


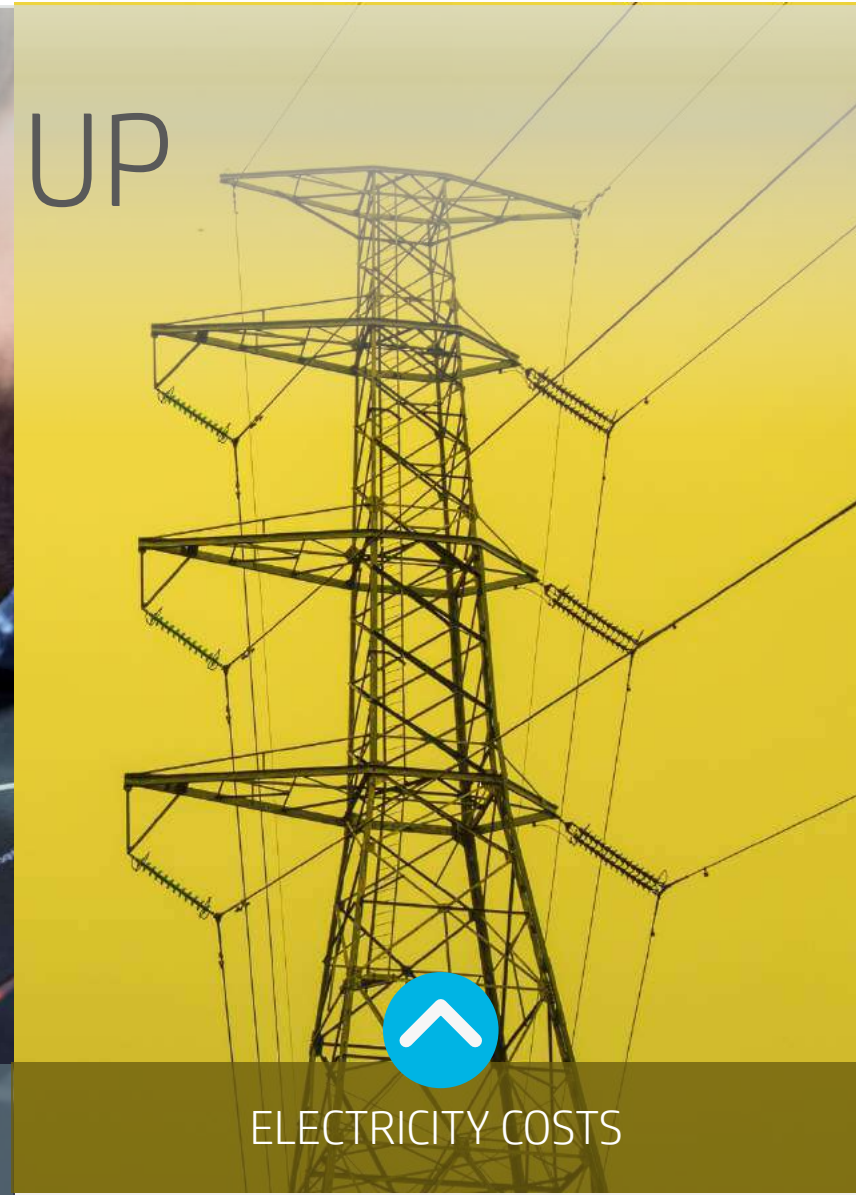
COSTS ARE GOING UP



PAPER PRICE



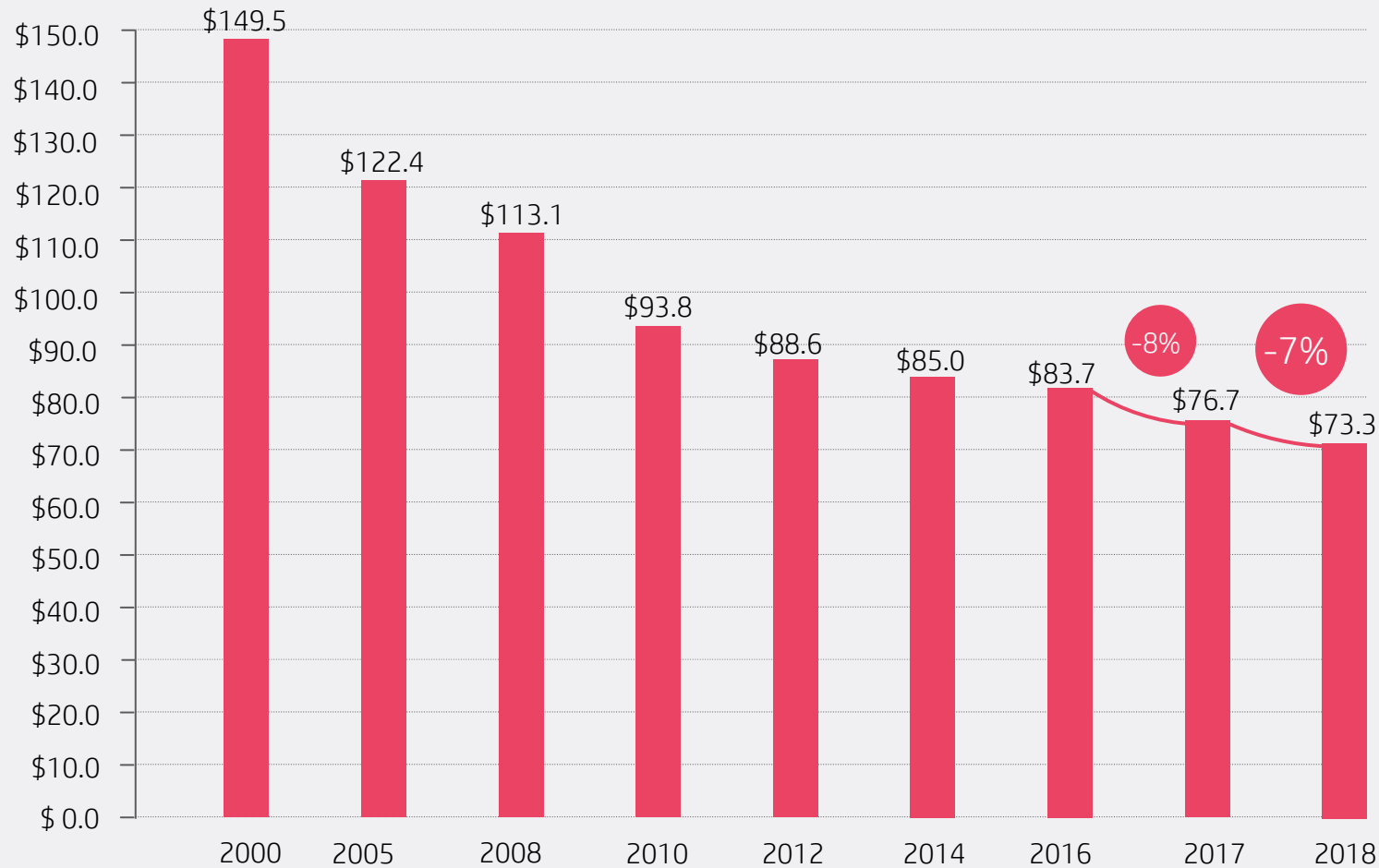
LABOR COSTS



ELECTRICITY COSTS

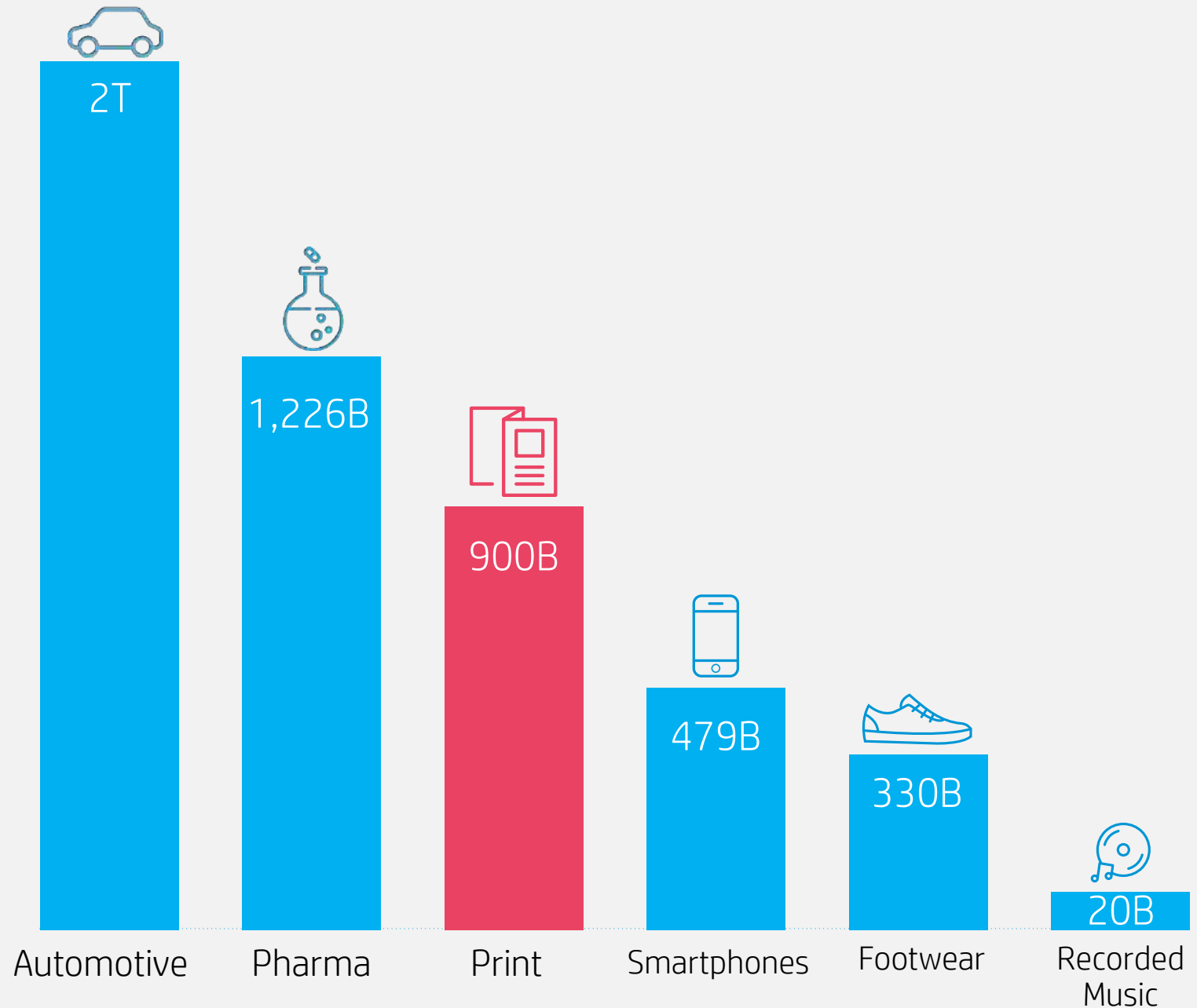
PRECIPITOUS DROP IN US COMMERCIAL PRINT REVENUES CONTINUES

Annual US Commercial
Printing Shipment for
Selected Years
\$B



Source: Dr. Joe Webb,
What They Think, Feb. 2018

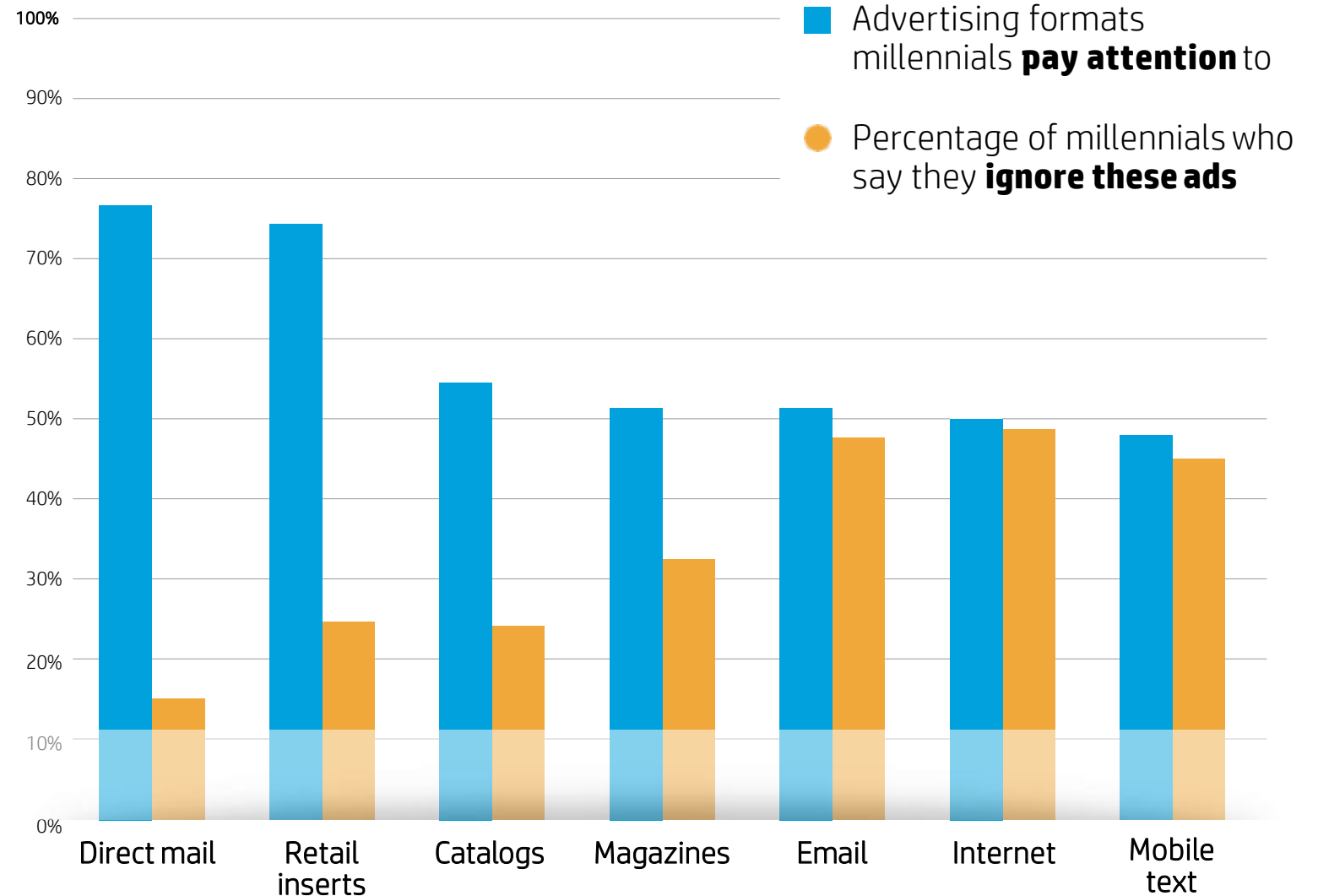
PRINTING IS, AND WILL REMAIN, A HUGE INDUSTRY



Interestingly...

Millennials pay
MORE attention
to print!

Print creates deeper impressions
on the brain and being perceived
as more genuine



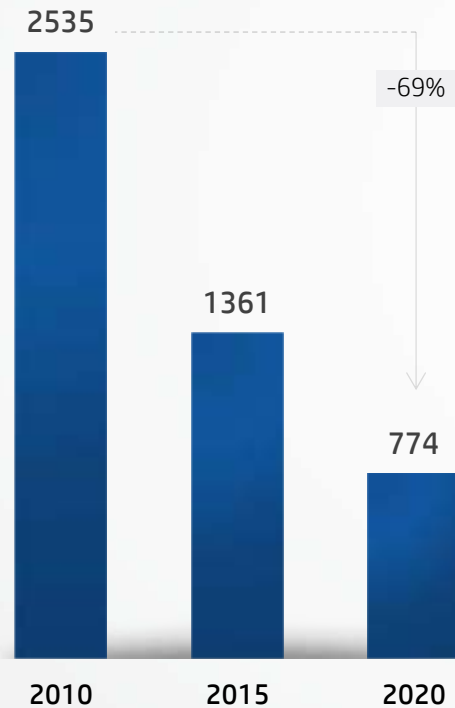
Source: Millennials: An Emerging Consumer Powerhouse. Quad Graphics 2015



Brands' demands are causing **run length to decrease**

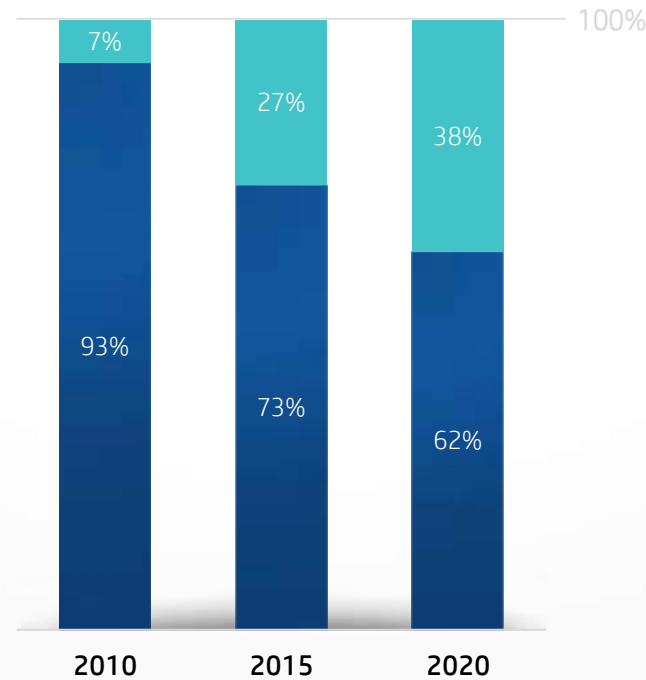
In the label market, most jobs concentrate in mid-range length, and multi SKU product are on the rise

Average run length - **1k meters**
(run length by linear meters)



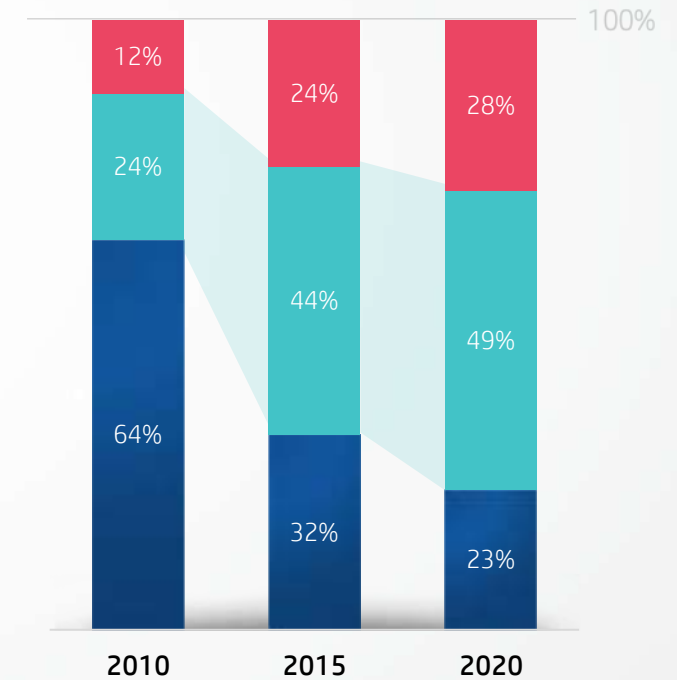
● Average RL

75% of volume under **10k** linear meters
(linear meters)



● Single SKU ● Multiple SKU

~40% of the jobs in the market
will have multiple versions
(no. of jobs)



● Up to 3K ● 3-10k ● 10K and up

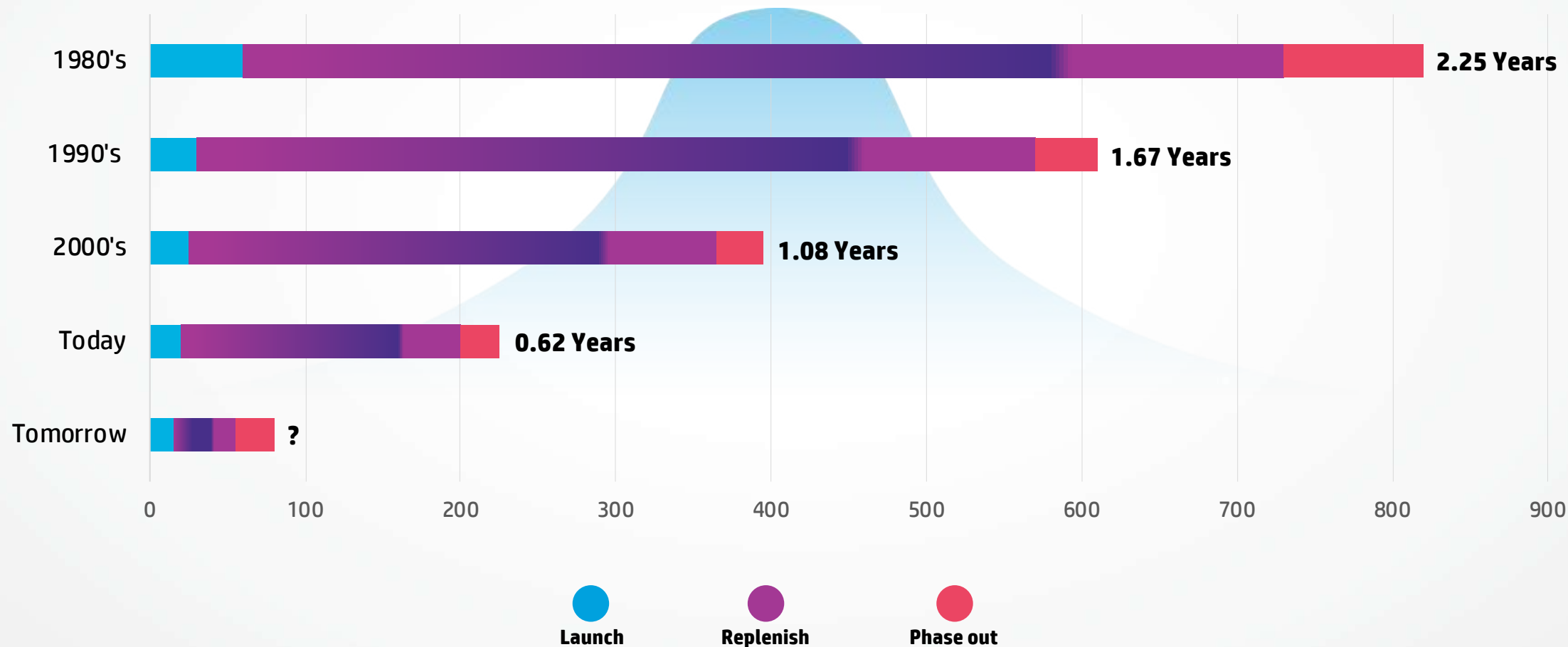
* Source: LPC primary research; AWA primary research; HP analysis of over 140,000 customer jobs





Product lifecycles are changing

time to market is more critical



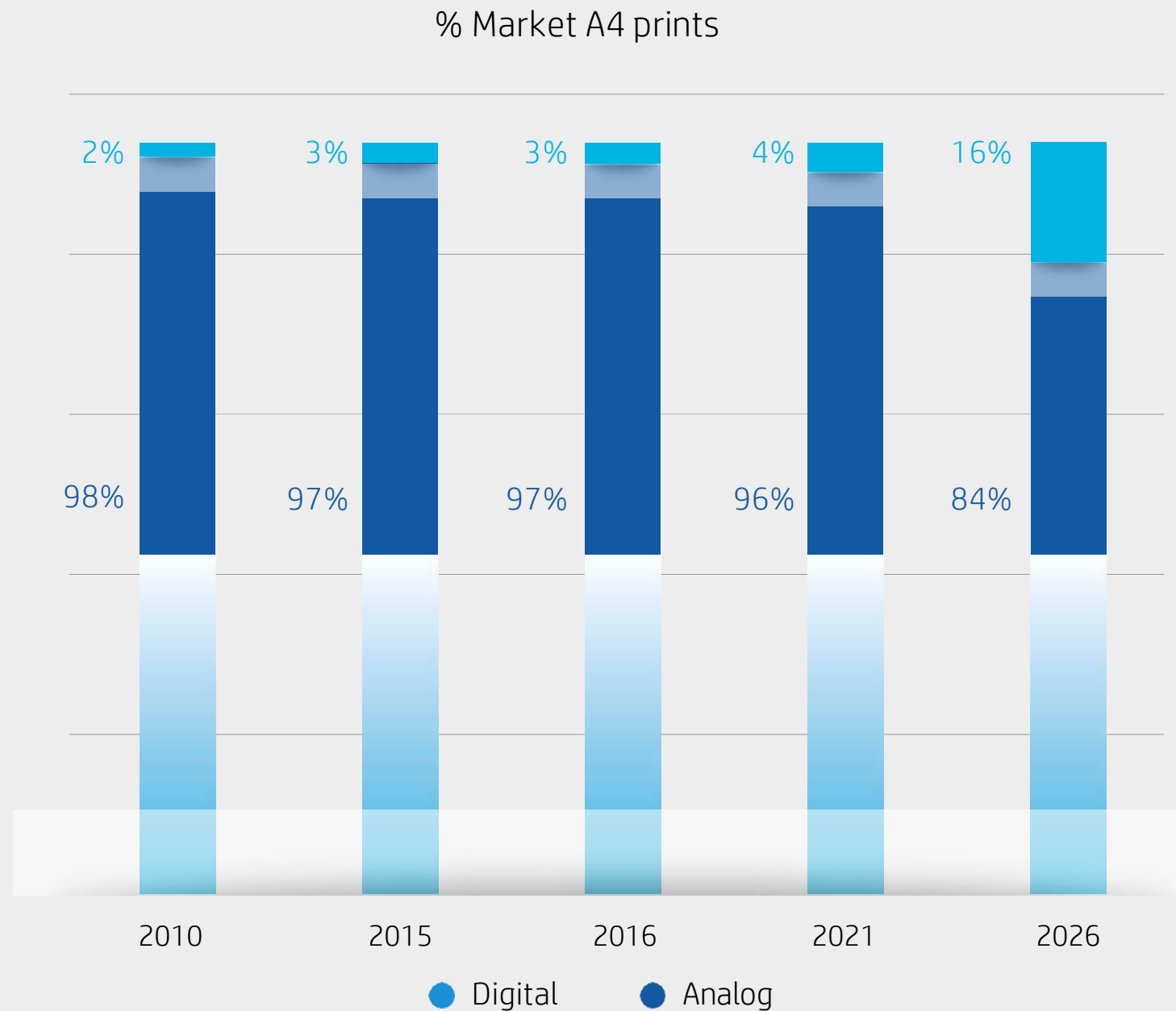
* Source: Colgate-Palmolive business analysis





Out of the overall printing **volume**, digital is still a minor part

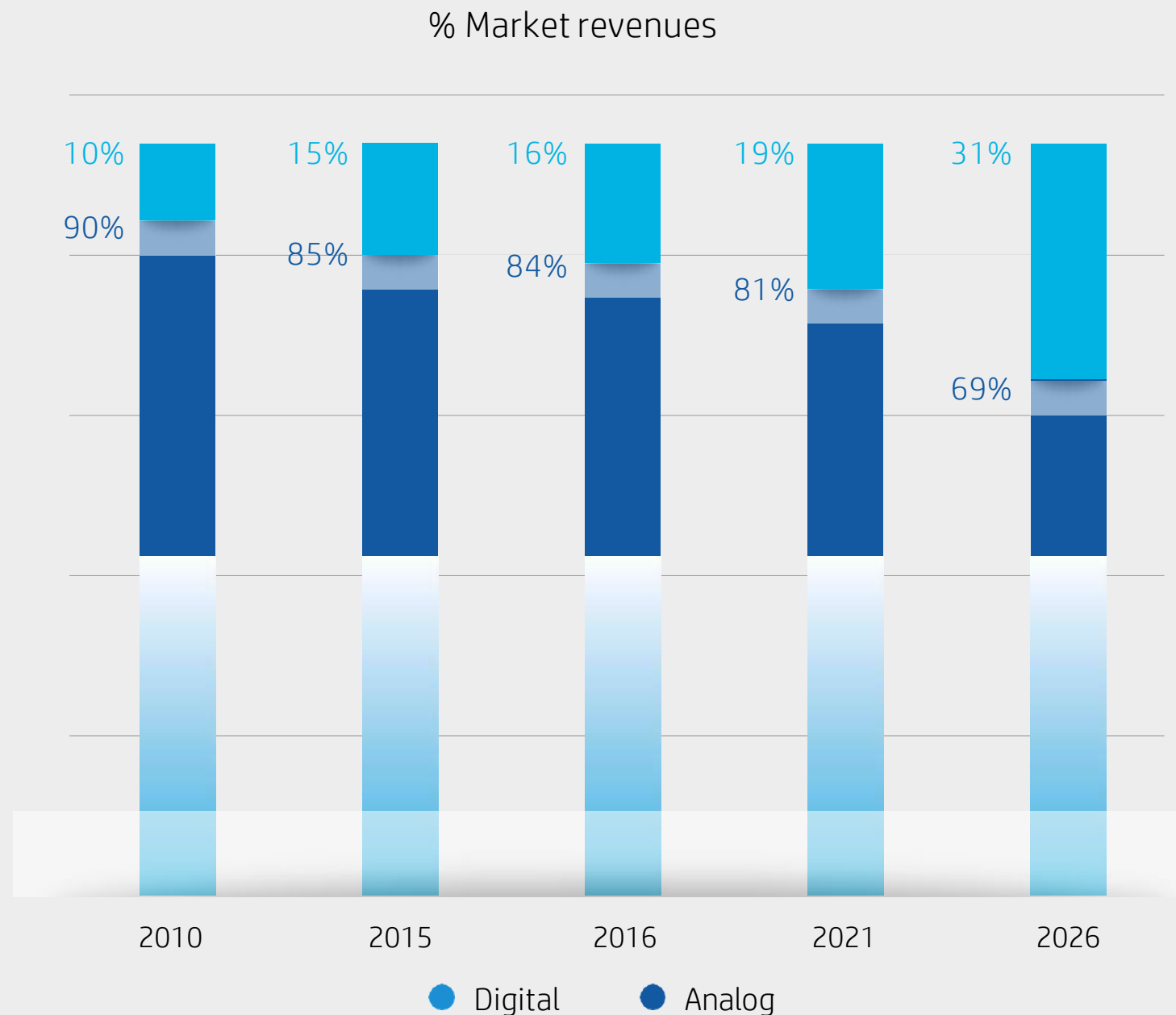
No dramatic change is forecasted





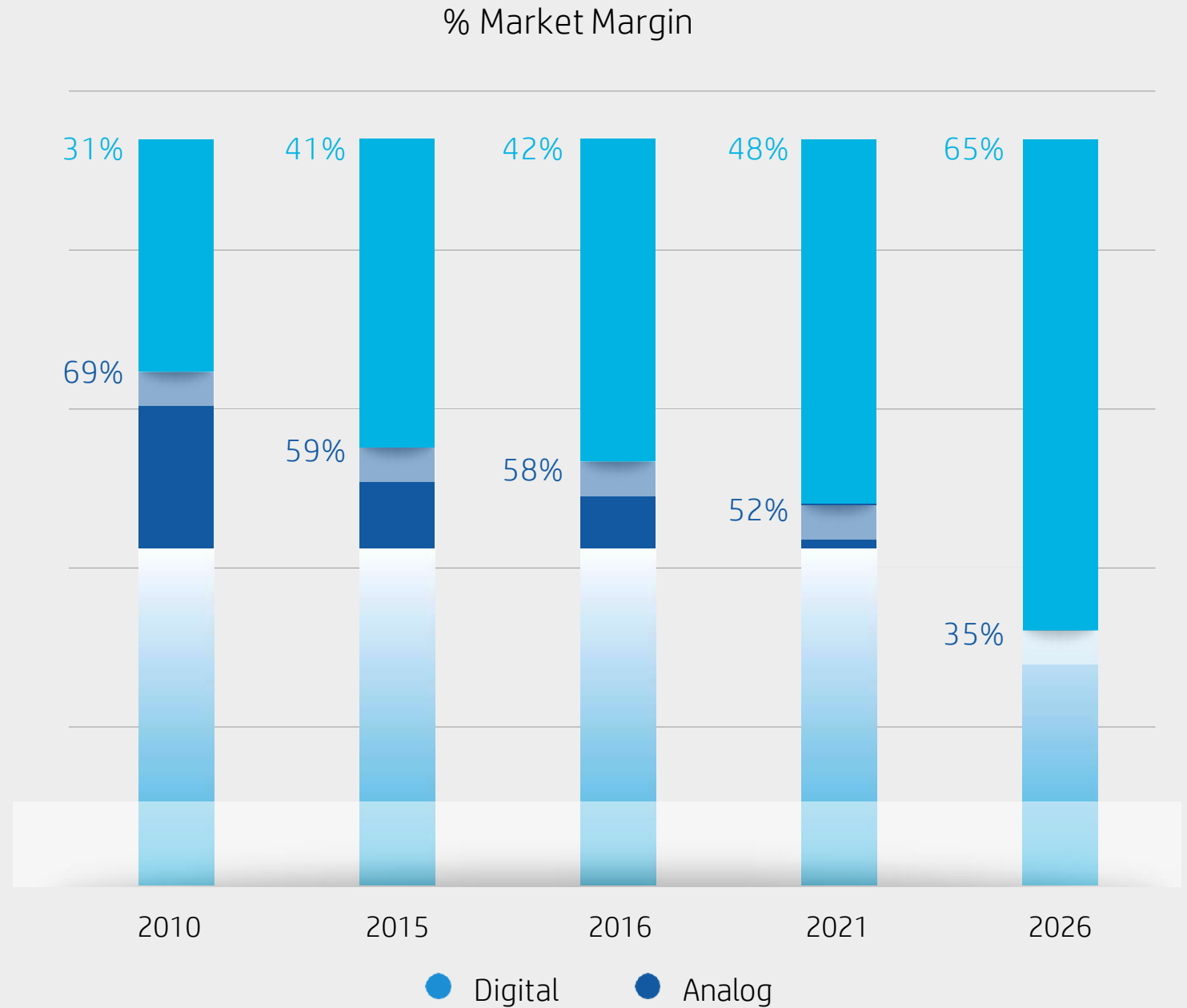
and it will become
only **30% of the
total market
revenue**

No dramatic change is
forecasted





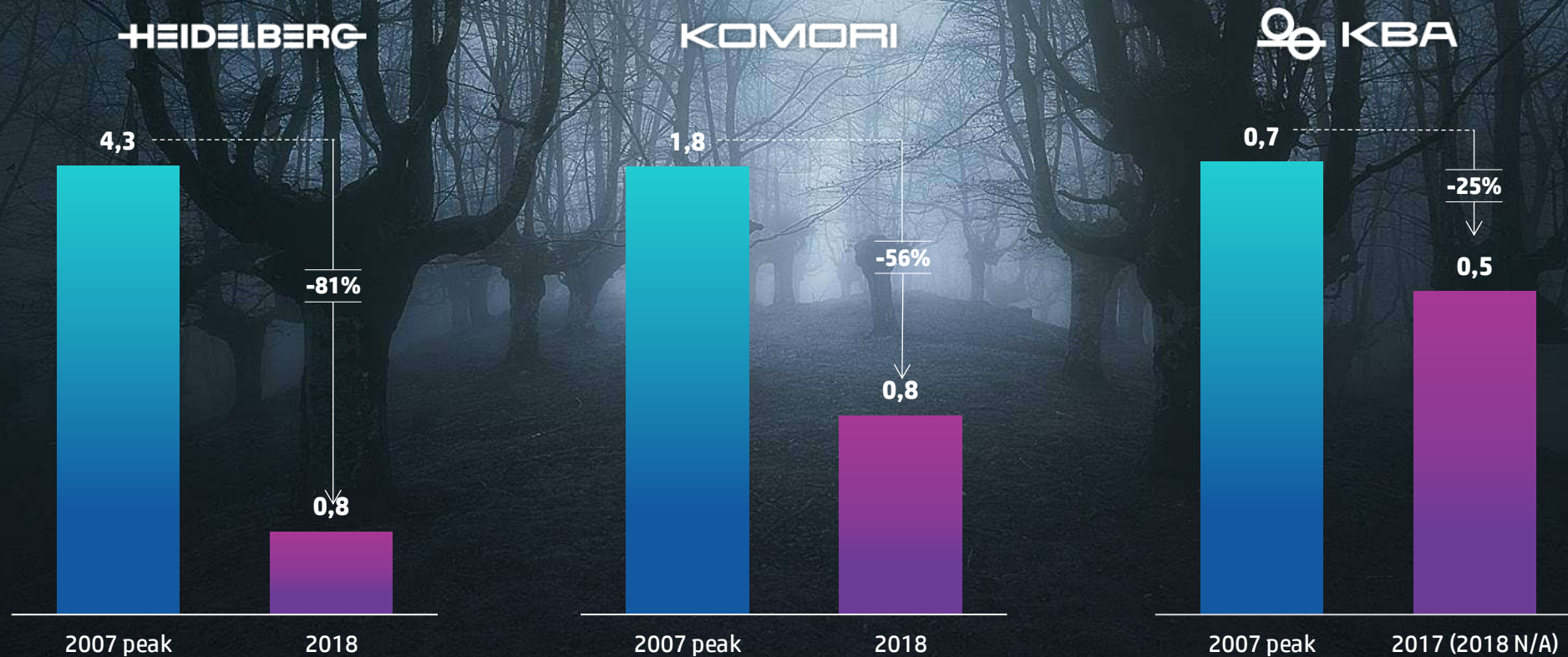
However,
Market margin
is and **will be**
digital!



Market Margin % for the whole commercial print market | Source: Internal HP Indigo Estimations

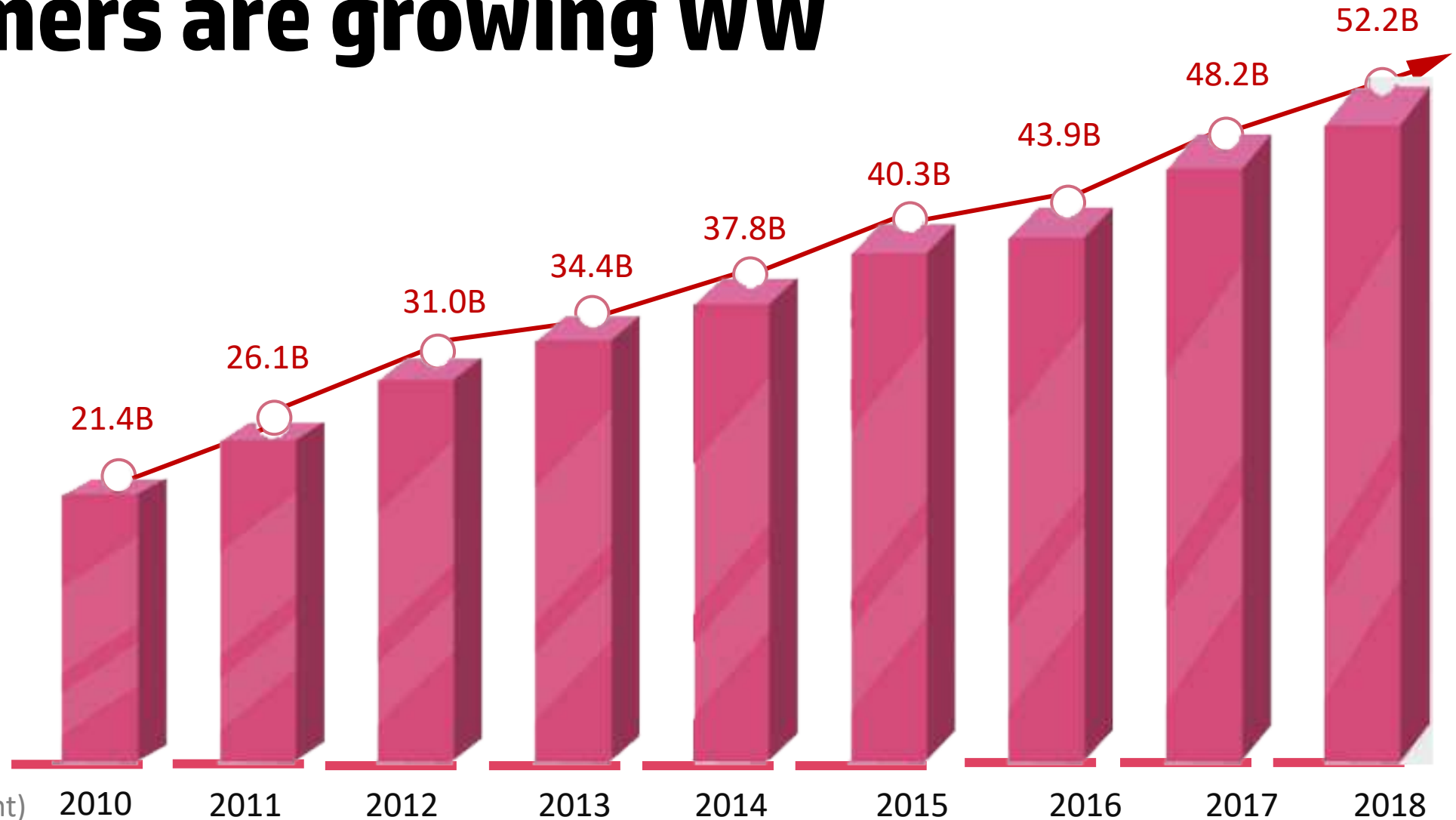


So is print dying?...

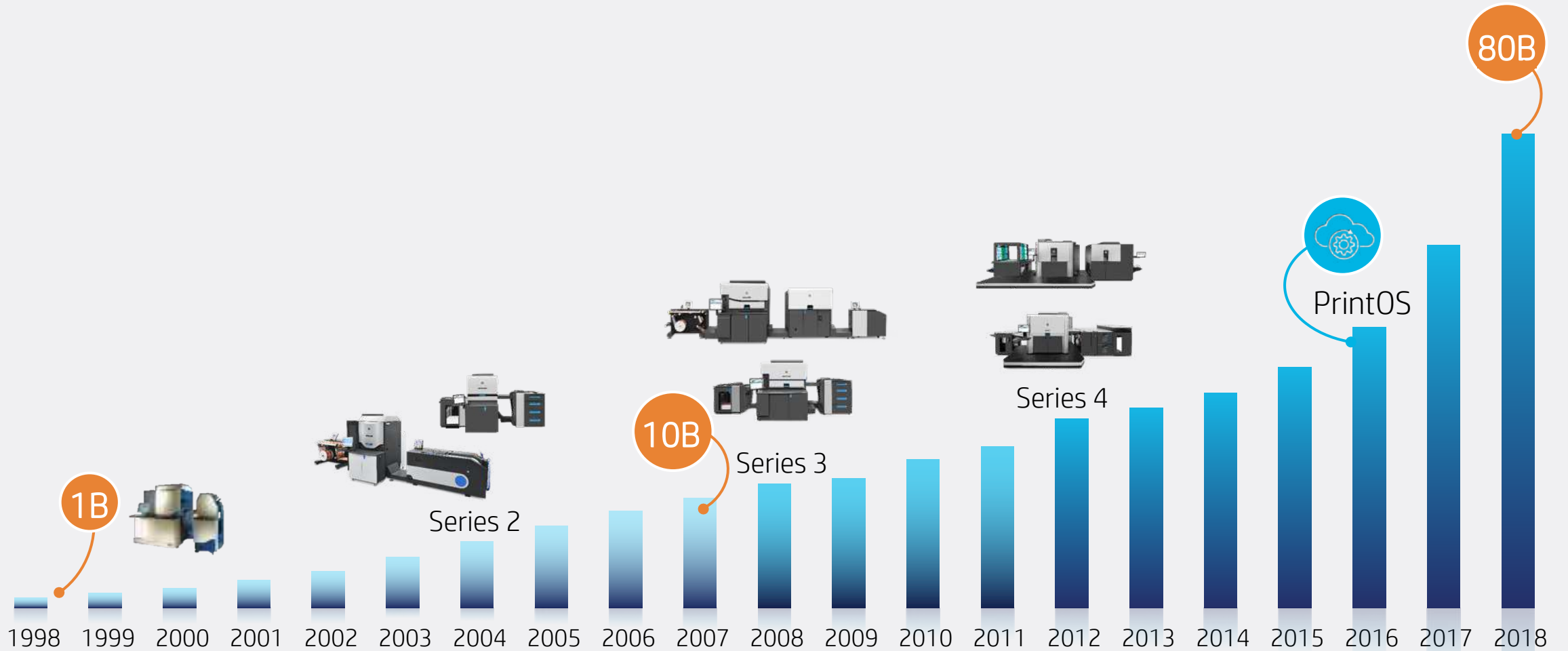


Source: google and Bloomberg finance April, 2018
Figures represent market cap in billions of euros

In fact - HP Indigo commercial
customers are growing WW



20 YEARS OF DOUBLE DIGIT GROWTH



Customers all over the world are printing with HP Indigo

The largest digital printing install base in the world. Over 8000* HP presses worldwide



*as of Dec. 2018 – all presses / including commercial, labels and packaging



SERIES 4 CUSTOMERS SCALING NEW BUSINESS MODELS



1000
INSTALLATIONS

IN 65
COUNTRIES

110
CUSTOMER

Multi
press



THE LARGEST VARIETY OF INKS IN THE DIGITAL PRINTING INDUSTRY



Cyan



Magenta



Yellow



Black



Violet



Green



Orange



White inks



Vivid Inks



Fade Resistant
inks



Fluorescents
inks



Taggant
inks



Silver



Transparent



Light Inks



Spot Colors



ElectroInk
Primer

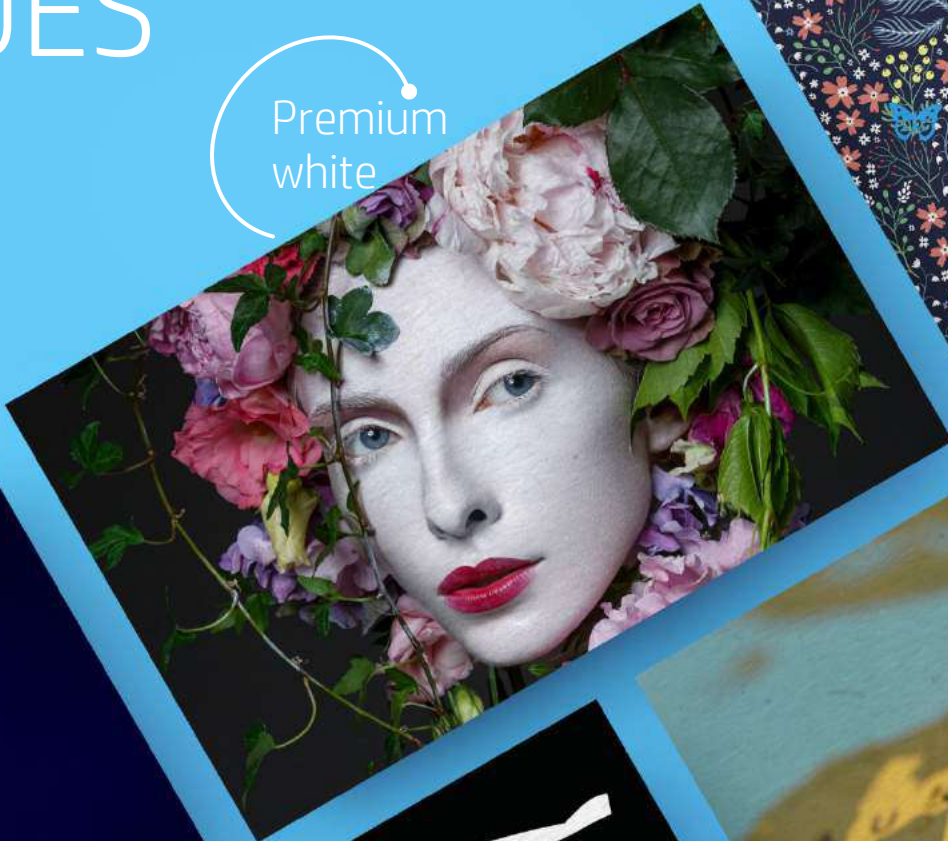


Invisible
inks



INNOVATION CONTINUES

Premium
white



Fluorescents



Invisible
Blue
and
Yellow



Invisible, Blue
and Yellow



Scratch-
off



Print
Different
HP
VIP Event 2019

HP INDIGO VISION AND MISSION

Vision

Enable the most profitable customer base in the Graphic Arts industry by driving both digital innovation and analog-to-digital conversion in high value color print production market, transforming the way brands, designers, agencies and consumers leverage print

End-to-End Solutions



General Commercial Printing



Photo



Publishing



Labels & Sleeves



Flexible Packaging



Folding Carton

Workflow



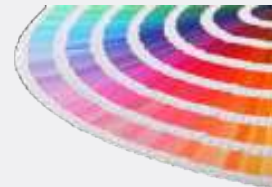
Print Servers



Digital Presses



Inks



Media and Materials



Finishing



PrintOS

Services & Business Development

Financing

Mission

- Be #1 in high value digital color pages for the Commercial and Packaging print markets by leveraging Indigo LEP technology and comprehensive end-to-end solutions
- Build a customer-focused, passionate, innovative, committed and quality minded global employee community

THOUSANDS OF HP INDIGO CUSTOMERS ARE LIVING INDUSTRY 4.0 WITH PRINTOS APPLICATIONS



Simplify and
accelerate
order processing



Intake and process
100's or 1000's
of jobs per day



Ensure presses
are always
at top condition



Exceed your
customers' color
quality expectations

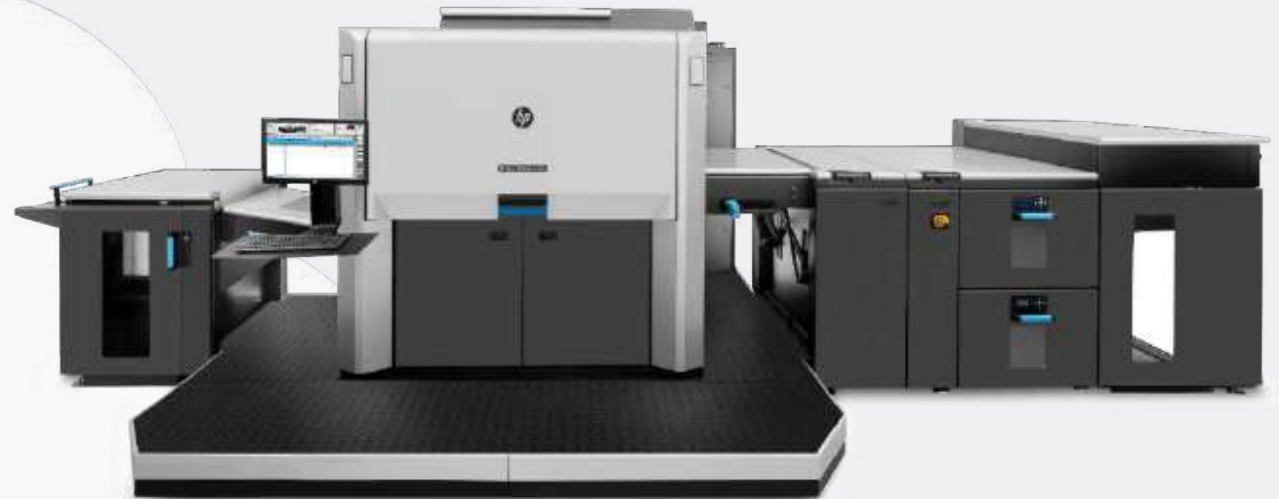
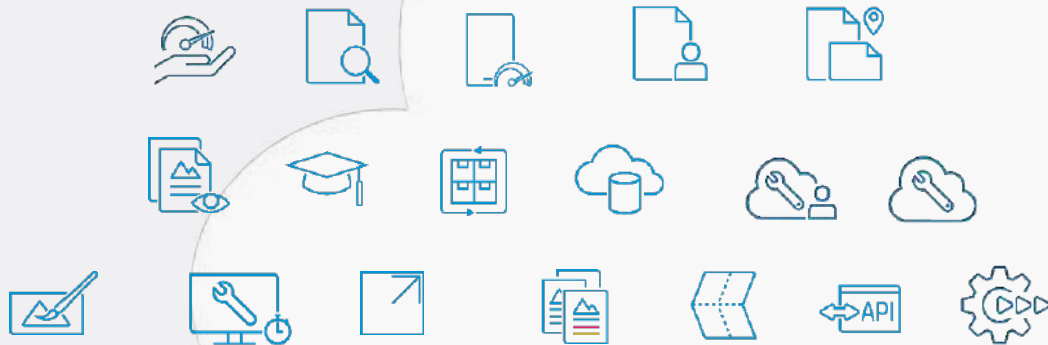


Keep software tools
up-to-date & resources
secured



Drive and develop
your staff's knowledge
and skills

PrintOS apps





DM-LINER® UV-INK connected inline to Indigo 6900

NEW

PRINT OVER FOIL - INLINE



HP INDIGO PACK READY ECOSYSTEM

NEW

PACK READY LAMINATION

- Simplified
- Sustainable
- Speed to market



PACK READY COATING

- High-end applications such as Retort and Microwave



TOPPAN



wipf
Innovative Packaging Solutions



THREE FOUNDATIONS OF HP INDIGO LIQUID ELECTROPHOTOGRAPHY (LEP)



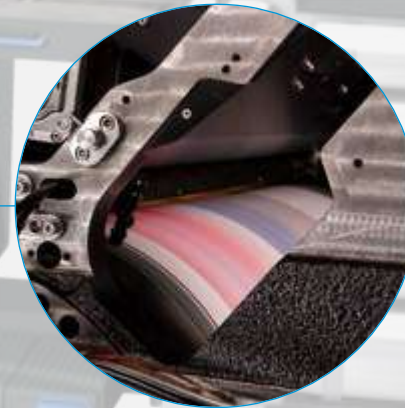
HP Indigo
ElectroInk



Thermal
offset transfer



Direct contact
transfer





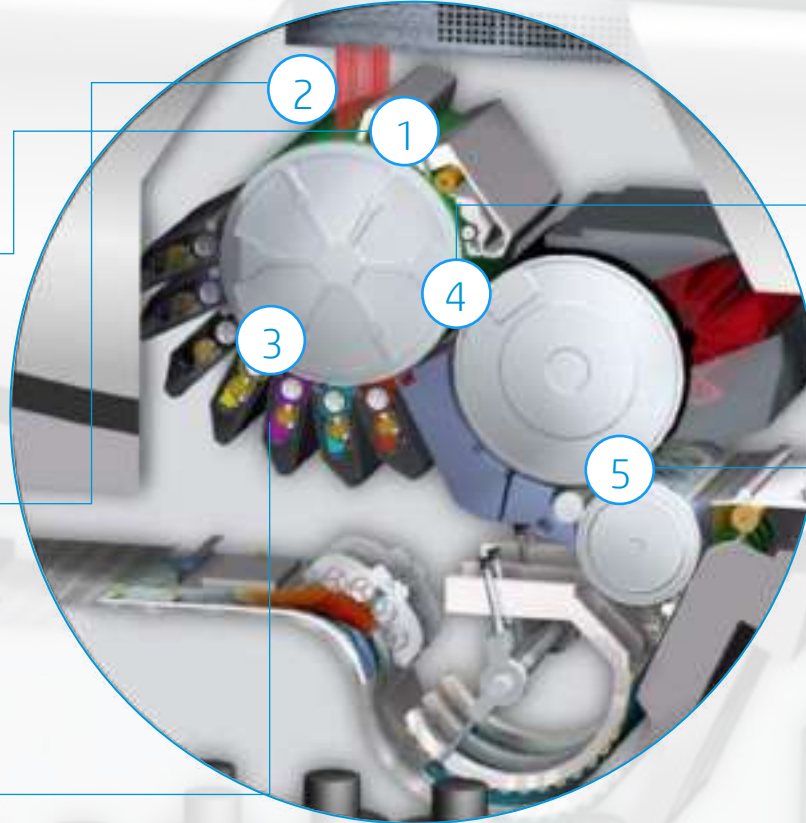
THE HP INDIGO ELECTROPHOTOGRAPHIC PROCESS

The HP Indigo printing engine performs the following sequence:

1. Charging unit generates a uniform charge on the photoconductor -Photo Imaging Plate (PIP)

2. A laser scanning array discharges the photoconductor plate to create a latent electrostatic image

3. One of the colored Binary Ink Developer (BID) units engages with the photoconductor plate, developing an image on it



4. Using an electric field, the ink transfers from the photoconductor plate to the blanket

5. Image (in film form) transfers from the blanket to media

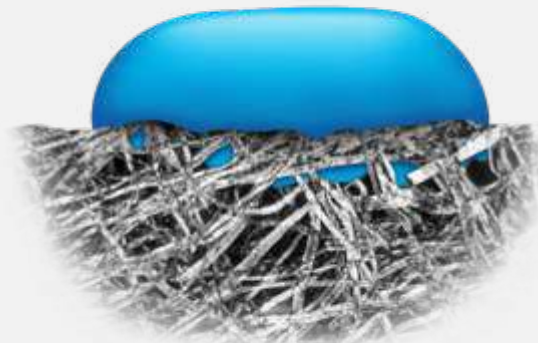
The process is repeated for each separation - this is known as [Multi Shot Color Process](#)

With HP Indigo [One-Shot Color Process](#) all the separations accumulate on the blanket (for web presses and heat-sensitive materials.)

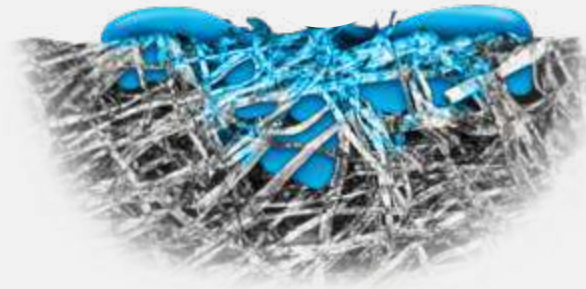
A THIN LAYER THAT REPLICATES MEDIA'S GLOSS AND TEXTURE AND DOES NOT INFLUENCE MEDIA PROPERTIES



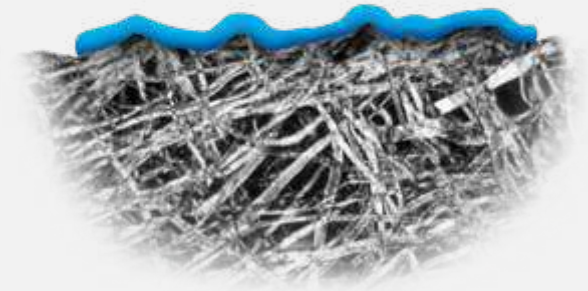
Xerography/dry toner



UV Inkjet



Water-based Inkjet



HP Indigo LEP

COLOR CONSISTENCY ACROSS THE WORLD LEVERAGING PRINTOS INFRASTRUCTURE

NEW



1 | PROFILE

Automatically **match industry printing standards** with **Media Fingerprint**



2 | CALIBRATE

Keep impeccable **color consistency across presses and time** using **3D calibration**



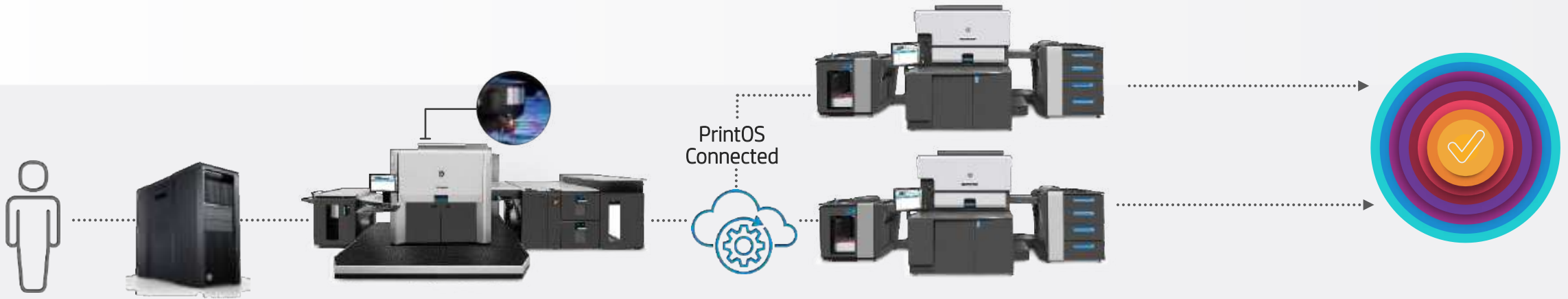
3 | SHARE

Easily **share and manage color assets between presses and sites** via **PrintOS Substrate Manager**



4 | MONITOR

Track your **color status anytime, anywhere** with **HP PrintOS Color Beat**



BROADEST MEDIA GAMUT

Virtually endless variety of media types, offering the broadest gamut of substrates in the digital print industry, including:



Off-the-shelf coated
and uncoated



Synthetics



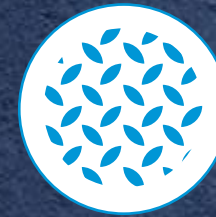
Self-adhesives



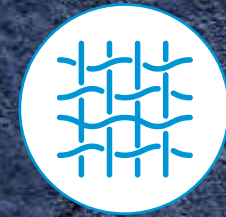
Heavy and
light media



Dark and
colored



Metalized



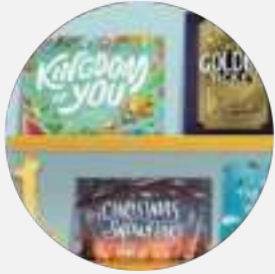
Canvas

And more...

True digital flexibility for sheet-fed presses: ability to seamlessly switch between media types without stopping the printing process, using drawer feeders for maximum flexibility.



Photo book



Publishing



Balloons



Pressure sensitive labels



In-mold labels (IML)



Shrink sleeves



Tubes



Plastic cards



Direct mail



GCP



Professional photo



Wall paper



Cards



Blister pack



Heat transfer



Folding cartons



Wet glue

FOR A VERY BROAD RANGE OF APPLICATIONS



CONSTANTLY EVOLVING

INNOVATION IN THE MAKING

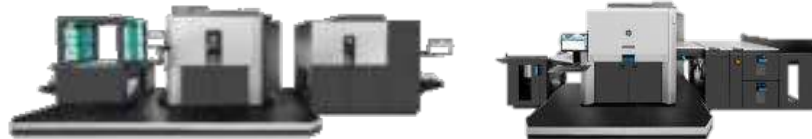
HP Indigo 50000- B1 duplex
HP Indigo 8000- double the speed



Drupa 2020

Drupa 2016

B2 sheet fed
B1 roll fed



Series 4



Series 3



Series 2



The most comprehensive Commercial press portfolio



HP Indigo 12000 HD



HP Indigo 12000



HP Indigo 50000



HP Indigo 20000 for Commercial



HP Indigo WS6800p



HP Indigo 5900



HP Indigo 7900



HP Indigo W7250



HP Indigo 5r



HP Indigo 7r



Ofset ->

- nízké náklady na tisk
- rychlost tisku
- tiskové desky...
- doba přípravy stroje

Hybrid

<- Digitál

- vyšší náklady na tisk
- nižší rychlost tisku
- žádné desky
- „nulová“ příprava stroje



The Digital Revolution in Print



Pre-Press



Pre-Press

100%

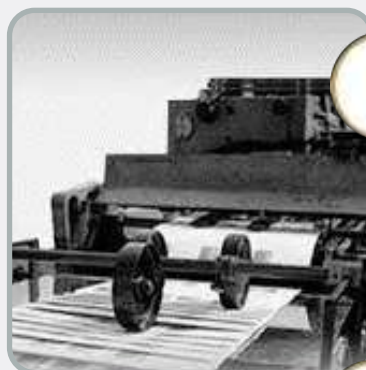


Press



Digital Press

10%



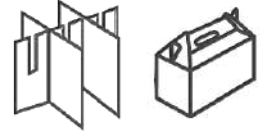
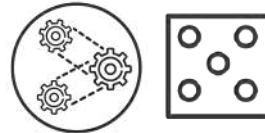
Analog Post-Press



Digital Enhancement

1%

Milestones



Highcon
established

drupa 2012 -
launch of **digital
finishing for short
runs**

Efficiency -
digital stripping,
registration, etc.

Launch of
Euclid IIS for B2
digital printing
market

drupa 2016 –
Beam launch
**customization,
workflow, speed**

S/w **speed
boost** for
Euclid
install base

Launch of
Euclid IIIC to
corrugated
market

2009

2012

2013

2014

2015

2016

2017

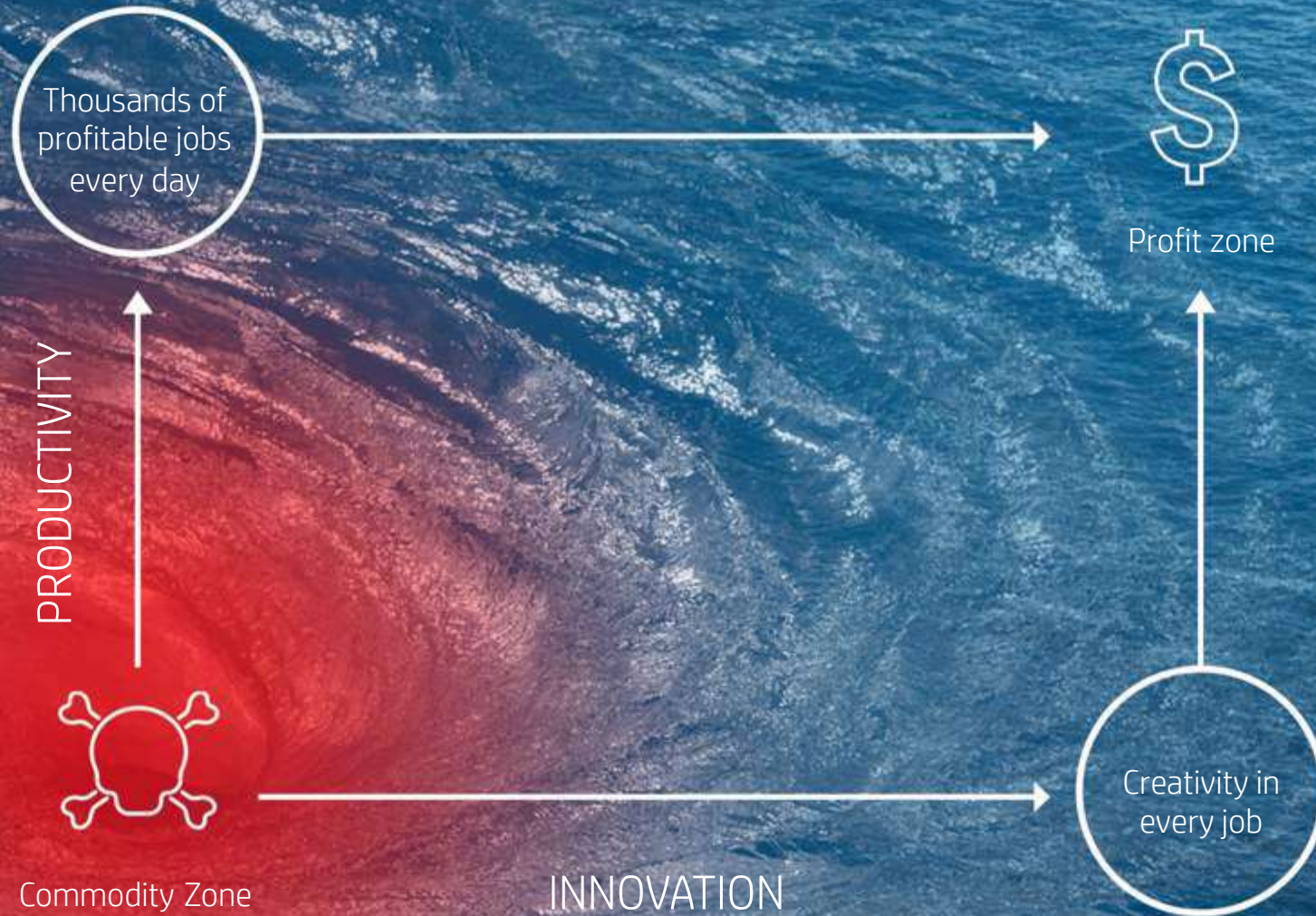
2018



HIGHCON PARTNERS EVENT



Be Innovative & Productive





Your customers are looking for ways to...



Cut costs



Optimize supply chain



Connect digital campaigns with real products



Increase Return of Marketing Investment



Reduce time-to-market



Engage with consumers



Be eco friendly





**Digital is the
key solution**
to help increase
consumer
engagement
& innovation



Mass
customization



Personalization



One-off
production



Versioning &
Multi SKUs



Special
editions



Seasonal
versions



Variable
data

And allows you to help your customers **optimize printing and processing costs**

€1.00

Print &
Converting
costs

€6.00 - €8.00

Processing costs



Many advantages lay underneath the surface



Reduce cost

- Minimum inventory
- Volume based on demand
- Reduce obsolescence
- Market testing



Reduce risk

- Market testing
- Use the most updated version
- Reduced time-to-market
- Volume based on demand
- Global color management
- Anti-counterfeit components
- Print quality
- Regulatory compliance



Sell more

- Reduced time-to-market
- Deliver localized versions
- Cause driven promotions
- Event-driven promotions
- Late stage product differentiation
- Product life cycle solutions



Environment

- Reduce waste
- Reduce carbon emissions
- Reduce obsolescence
- No hazardous chemicals
- Reduce energy consumption



Supply Chain

- Track & Trace
- Serialization
- Revision control
- Warehousing & Distribution
- Just-in-Time production

More Web-to-Print Jobs...and still growing

Two years ago we produced 180 jobs a day. Last year 540 jobs a day. This year we are averaging 5800 with some days peaking at around 30000!

Jon Bailey, Proco, UK





2009

Customer Growth: ProCo story



2
HP
Indigo's



70
Staff



70
Jobs
a Day



£7m
Annual
Turnover



2019



6
HP
Indigo's



150
Staff



6000
Jobs
a Day



£16m
Annual
Turnover



