FROM DESIGNER LABEL TO DIGITAL LABEL

How Apparel #BornDigital™ will lead the way in the Internet of Things

In association with

CONTENTS

FROM DESIGNER LABEL TO DIGITAL LABEL

Apparel has a barnstorming history of digital innovation. In the early 2000s Victoria's Secret was one of the first to 'break the internet' with a championship football ad for their new e-commerce site. And pure-play e-tailers like ASOS with revenues now over US$1bn launched in the first dotcom boom. Back then the world was seen as 'bricks vs. clicks', with breakthrough concepts like Nike ID deliberately contrived to drive direct sales to the Nike website and drive much higher resulting margins.

All of that started to change in the mid 2000s when Burberry declared its intent to be 'fully digital', showing the fashion and luxury world how this could mean not just strong campaigns in the (then) new social media, but also in-store experiences. Others like Topshop soon followed, and by 2010 the perspective had shifted to 'clicks and bricks', or 'omnichannel retail', as a *Harvard Business Review*[1] article termed it.

By 2015, click and collect was the fastest-growing channel[2], with consumers routinely 'showrooming' on their smartphones while shopping in physical stores, in the same way that they use lookbook apps and Pinterest to browse before buying in stores. There is barely a major fashion label these days that doesn't embrace live-streaming fashion shows, social media channels and digital in-store interactivity, not to mention

mobile payments and beacons. Activewear brands spend millions on digital - not just on campaigns, but also on wearables, fan communities, and above all, on content. Increasingly, the content that drives the apparel category is shoppable.

Fashion, sport and luxury are all about the brand. And today you simply cannot be cool, relevant or happening without a comprehensive digital presence.

"Soon all manufactured products will be #BornDigital™"

But there was something missing from this picture until now. Compare apparel brands with fully digital players like Amazon, Tesla, Spotify, Uber. The difference is that while fashion does digital, these players are digital, right down to the most fundamental product, service and interaction. Hence they are able to mine richer user data and make money in new ways.

All that is set to change as Avery Dennison and EVRYTHNG launch the #BornDigital™ program, bringing unique digital identities to 10 billion apparel products that Avery Dennison supplies labels and tags for and EVRYTHNG manages in the cloud.

Because these digital identity data profiles will be created on the web, each item is a digital object that links to the global ecosystem of applications and services, cloud processing, social media and other customer data systems. These identities and the real-time information flow they capture and manage are available all along the chain, from manufacturer to retailer to recycler. This means that critical business processes and operations, from product authentication to inventory management, can also get connected in radically more efficient ways.

In terms of growth, most vitally, it provides a platform for offering relevant new content, services and experiences to consumers. From clothes and shoes, #BornDigital™ creates a whole new opportunity, comprising:

- Better ways of doing what is already done now; for instance, extending the richness and reach of Customer Relationship Management programs.
- Going further into new solving issues and pain points that were previously intractable; for instance, helping to prevent counterfeiting or product diversion.
- New, breakthrough business concepts and models; for instance, the smart laundromat.

Due to the scale and scope of these opportunities, we believe that the Avery Dennison and EVRYTHNG association for #BornDigital™ products is as big a game-changer in apparel as smartphones. And as with smartphones, it is not so much a single innovation, as a platform to build myriad innovations upon.

Consider what a difference Nest® has made to home heating. Take a traditional, 'dumb' device (the thermostat), make it smart, and enable it to learn about its owner. Imagine the same principles applied to how clothing fits: knowing which clothes fit best (via user feedback or selfies) and relating that back to data on sizing, cut, fabric composition and properties, age and wear-and-tear. You'd have fit data that even Savile Row would envy! Furthermore, you'd have data that could update in real time, accommodating Thanksgiving-related indulgence, for example. An application based on this data could recommend in advance which of the (on average) 11 pairs of jeans a woman tries on in a single shopping trip will fit best - or in future, custom manufacture the perfect pair. This simple innovation could not only delight shoppers, but also save billions in ecommerce returns. And this is but one minor example of the thirty Apparel-focused applications of the Internet of Things that this eBook will go on to explore!

The rising star of the economy, Apparel overtook computing as the number one sector in US ecommerce last year, and it is second only to grocery and food in the booming EU m-commerce sector. Fast-moving, competitive, creative, with strong global brands and a proven track record of digital innovation, Apparel looks set to establish the Internet of Things before most other sectors. We believe one day all manufactured products will be #BornDigital™ – all 5-10 trillion items. If 'data is the new oil', welcome to the new Texas!

APPAREL'S LOVE AFFAIR WITH DIGITAL

FASHION TECHNOLOGY TIMELINE

1998

Victoria's Secret launches ecommerce site; the brand has 35% of US lingerie market today

1999

Boo.com launches the most publicized failure in early internet history

2000

Ralph Lauren launches online store and ecommerce through polo.com

As Seen on Screen (later ASOS) launches

NET-A-PORTER launches as a shoppable magazine on the web

2001

Victoria's Secret holds online fashion show, advertised during the Big Game, and 'breaks the internet' with millions unable to view

ASOS IPOs on London AIM stock market

2004

Chanel creates a 3 minute online film with Baz Luhrman for Chanel No5 featuring Nicole Kidman; an instant YouTube hit (forerunner to 10m+ views films with Brad Pitt, Marilyn Monroe and others)

2006

Ahrendts and Bailey at **Burberry** announce commitment to be "fully digital"

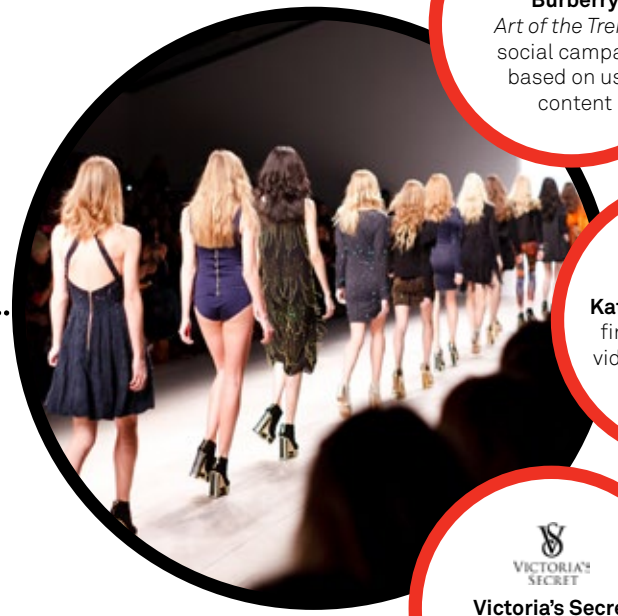
Nike and **Apple** partner to pioneer connected apparel with launch of Nike+ iPod Sports Kit

2007

UNIQLO's online sensation UNIQLOCK turns a local Japanese brand into a celebrated global brand overnight

Gilt Groupe debuts the flash sales model, challenger to designer outlets

2009



Burberry *Art of the Trench,* social campaign based on user content

Kate Spade launches first major YouTube video, accompanying ecommerce

Victoria's Secret develops its Pink brand into online community

2010

Warby Parker launches a direct to consumer eyewear service online

Macy's launches its magic mirror dressing rooms

2011

Omnichannel becomes widely known after an *HBR* article entitled 'The Future of Shopping'

2012

Topshop partners with Facebook to 'customize the catwalk'

Gilt Groupe valued at US$1bn

Burberry starts using RFID tags for in-store interactivity e.g. digital mirrors

2013

kate spade

Kate Spade makes its interactive store windows shoppable 24/7

Nike brings ID to Instagram with #NIKEPHOTOID

Burberry one of the first to use Instagram for video

HARVEY NICHOLS

Harvey Nichols gives tablets to shoppers to access content via RFID tags

Under Amour acquires MapMyFitness app with 150m users

2014

TOPSHOP

Topshop partners with Google, increases London Fashion Week audience to 4m (vs. approx. 50,000 attend LFW); #LFW content streamed live to billboards across the UK

H&M proves that fashion championship football ads can still break the internet with 1.5bn impressions for its David Beckham #covered/#un/covered campaign

2015

ASOS passes the US$1bn revenue mark

NET-A-PORTER.COM

NET-A-PORTER launches net set, it's 'own social medium' and marks $1 Billion in revenue

2016

ASOS launches #DIGIDATING, a YouTube dating show

Burberry announces end of seasons – buy the catwalk same day; debuts collection simultaneously on Snapchat, adopts Periscope

REBECCAMINKOFF

Rebecca Minkoff goes one further – buy live during catwalk show

EVRYTHNG

AVERY DENNISON | Retail Branding and Information Solutions

EVRYTHNG and Avery Dennison connect 10bn #BornDigital™ products to the web

FASHION, SPORT AND LUXURY APPAREL BRANDS JUST LOVE DIGITAL

The earliest big ecommerce flop was a fashion brand - boo.com, who burned through $135m of VC money in 18 months before going bust in 2000 in the dotcom crash[3]. The 56k modem world was simply not ready for rich interactivity and shoppable content. Arguably, this content-rich fashion shopping site founded by a model and her moneyed friends was just ahead of its time; look at the growth of NET-A-PORTER, with over 10m unique visitors a month[4], and revenues over $1bn.

In 2015 clothing and accessory sales overtook computing to become the highest selling category of goods online in the United States[5].

In the UK, by 2014 online sales of clothing and footwear reached US$15.1bn (£10.7bn): 17% of the total consumer spending on apparel. And this is forecast to reach US$26.8bn (£19bn) by 2019[6].

70% of internet users now buy some clothing and fashion online, and perhaps more significantly, digital influences the majority of all offline sales[7]. Consider that 84% of mobile shoppers already use their smartphones to help with shopping in physical stores, and of those, 79% ultimately make a purchase as a result[8].

Clothing and footwear is the second largest category in m-commerce after food and groceries, with EU sales of US$3.25bn (£2.3bn) in 2014 forecast to triple by 2019[9]. Recent figures suggest steeper growth still, with Cap Gemini reporting 96% growth in m-commerce in early 2016, as smartphones and smarter m-commerce platforms started to bite[10].

Mobile has become the pivotal fashion device. It's the device that snaps and shares looks and does the showrooming (comparing prices while shopping in-store). Stores have fought back with mobile apps that have been used to good effect by fashion brands to enhance the experience, build relationships and target offers. Social channels like Instagram now compete with apps and blogs that help you 'get the look', like Polyvore with its shoppable collages, or Stylect, dubbed the 'Tinder of Shoes'.

Chain stores have had to evolve. They are under pressure from online players including Amazon and ASOS, fast fashion pricing from H&M and Forever 21. There have been casualties, like American Apparel entering bankruptcy proceedings; mainstream players like Gap and JCrew have also struggled.

For many years Apparel appeared a conservative category: other than pioneers like Burberry and Nike, most brands were happy to stick to the traditional marketing and media mix, assuming that people wanted to read about the fashion shows in glossy magazines, not tacky websites. Meanwhile the industry remaking itself, not just by embracing digital marketing but also by innovations that have made the industry real-time. Fast fashion, powered by real-time supply chain technologies (for example, Zara re-stocks 2,100 stores in 88 countries every two weeks[11]), had already challenged the lumbering concepts of seasons and slow hand-me-down of looks from high fashion to the mainstream fashion brands. But now luxury brands like Burberry are ditching the seasons: what you see on the catwalk today you can also buy today – or in the case of Rebecca Minkoff's #seebuywear, buy in real time while it's on the catwalk.

84% of mobile shoppers already use their smartphones to help with shopping in physical stores

The watchword in Apparel, as with retail, has been 'omnichannel'. Billed as 'The Future of Shopping' in *Harvard Business Review* in December 2011[12] it acknowledges that

physical retail is here to stay; digital channels offer enhanced experiences and customer relationships, as well as new services like click and collect; and pure-play online retail is a niche (like FarFetch.com where you can shop the world's tiny local boutiques online), the price-competitive (Amazon), and players like ASOS and NET-A-PORTER who use content to drive engagement.

Omnichannel was nothing new for Burberry - the "Apple of Fashion" - with its glittering digital flagship stores, live events, content and campaigns on Instagram, Snapchat and Periscope. And it's not just luxury brands that have jumped on the digital bandwagon. Mainstream fashion stores have also been leaders in digital, like C&A Brazil who use interactive hangers to display garments' social media "likes".

Apparel brands may have recognized the potential of digital later than some other consumer categories, but it has more than made up the lost ground in recent years. Not because it is trendy, but because it transforms businesses.

Macy's adopted social media, smart changing room mirrors and app-assisted shopping. These few well-executed innovations, plus some successful partnerships with designers, explain its meteoric rise in an annual survey of millennials' favorite brands, rising 259 places to 16th, ranking ahead of Converse, Starbucks and Xbox[13].

Another high performer in same survey was Ralph Lauren, climbing 74 places to 30th on the strength of their use of social channels to create sharp focus and relevance. "Macy's is doing all sorts of predictive analytics," report authors Moosylvania told *Adweek*, adding that Ralph Lauren is doing same. Their marketing is "very personalized and about making you look better, making you feel better."[14]

The omnichannel argument has impressed online players as well as offline. Warby Parker launched as a pure-play online glasses retailer. Their innovative service included sending 5 pairs to try (keep 1 send back 4). But like many other e-tailers, Warby Parker has been opening physical stores because the in-store transaction value is higher.

Meanwhile, 'Click-and-Collect' services have grown rapidly to equal pure-play e-tail in total sales[15]. According to Verdict Research, approximately half of the US$9.2bn (£6.5bn) Click-and-Collect market by 2018 will be clothing and footwear[16]. The one 'killer app' is trying items on at the store, in convenient reach of returns or exchange. This idea was given the luxury treatment in a Westfield shopping mall's airline lounge-style pickup point with dressing rooms. Not to be outdone,

jeansonline.com in the Netherlands will send your jeans to you, and keep the courier waiting while you try them on.

So-called digital tailoring pioneers like QCut use cameras and algorithms to get past the limitations of mass production and limited choices of sizes and shapes. Online it doesn't matter if you carry 10 sizes or 200 (like QCut). It also avoids the pain point of physical changing room frustration, where their research found the average woman tried on 11 pairs of jeans in a single shopping visit[17] . The trend towards customized clothes that fit better is set to explode with new '3D printing' style on-demand manufacturing.

Initially suspicious of digital, Apparel brands have come to love its opportunity to engage audiences creatively. Striking up a conversation. Sharing inspiring content. Making this content shoppable, too.

People follow fashion because they have a passion for it, consuming its content, sharing it, and discovery. They follow the designers, influencers and tastemakers, and the clothes and shoe designs themselves. So it's a natural fit for social media.

Digital brought endless opportunities for new ways of sparking connections, conversations, and global reach and scale, with content like Topshop and Burberry's live-streamed fashion shows reaching global audiences in the millions. These figures matter because however much the creative side of fashion acts like Hollywood, it's ultimately all about the numbers.

Performance apparel brands like Nike and Adidas who spend billions on marketing are increasingly reliant on digital innovation to drive not just their communications, but also their product offering.

Nike was an early entrant into the wearables market with Nike+. Its NikeiD customized sneakers are not only a standalone commercial success, but also the flagship of the brand's efforts to drive its loyal customers into direct channels (DTC) with an offer that's not available elsewhere.

Meanwhile, Adidas drove in exactly the opposite direction with Adiverse Virtual Footwear Wall: an interactive in-store console developed with Intel that turned any high street store into a flagship store capable of carrying its full 8000+ products. On trial in the UK, Adiverse gained a 40% sales boost from existing retailers[18].

Performance apparel has also benefited from a shift to wearing 'sports' clothing all day long – the "athleisure" trend that has buoyed sales of brands like Under Armour and Lululemon. These smart brand players have successfully ridden trends in sports and wellbeing – and they're also smart digital players.

Under Armour exploits the massive social following of the athletes it sponsors – for example, one basketball star, Stephen Curry, has over 2m Twitter followers. So when the brand produces content that provides behind-the-scenes access to its sponsored athletes' training regimes, it makes a big impact. But the brand has gone much further, with fitness app acquisitions reaching 140m users. In a keynote speech at SXSW in 2015, CEO Kevin Plank told the audience:

> *"Our belief is data is the new oil. You think it's a coincidence Google or Amazon is who you'd bet on? 40% of their revenue is attributed to purchase history... The companies who will win are those using math."*[19]

This view points to an even more digital approach to apparel: one that is not just about digital promotions and experiences, or even shoppable content and conversations, but deep data relationships driving repeat purchases.

WHY DID DIGITAL AND APPAREL NEVER QUITE BECOME AN ITEM?

Apparel and digital love each other these days: barely a week goes by without a story about Burberry's new partnership with Snapchat, or Yves St Laurent enraging fans online with Instagram content deletions.

Yet they have never quite settled down.

Why? Because there is a fundamental gap between apparel brands and digital brands. Apparel brands have found digital ways of reaching people, of delighting them with interactive experiences, or providing new ways to buy - like shoppable posters or tweets. And they have the web, and increasingly mobile content and channels. But only rarely (as in Under Armour's fitness apps) are they truly digital. Brands like Uniqlo create brilliant digital campaigns and retail offers, but this usually focuses purely on item sales. There is no true ongoing relationship, and little data beyond a one-off sale, or at most a CRM entry.

There is still a divide between the Apparel industry following digital and it being digital.

So much so, that every effort to extract the full value of digital data, of digital relationships, digital applications and services, always falls that little bit short as Kevin Plank pointed out, compared to brands that are digital to the very core.

Like Tesla and Uber in motoring.

Like Facebook and Instagram in social.

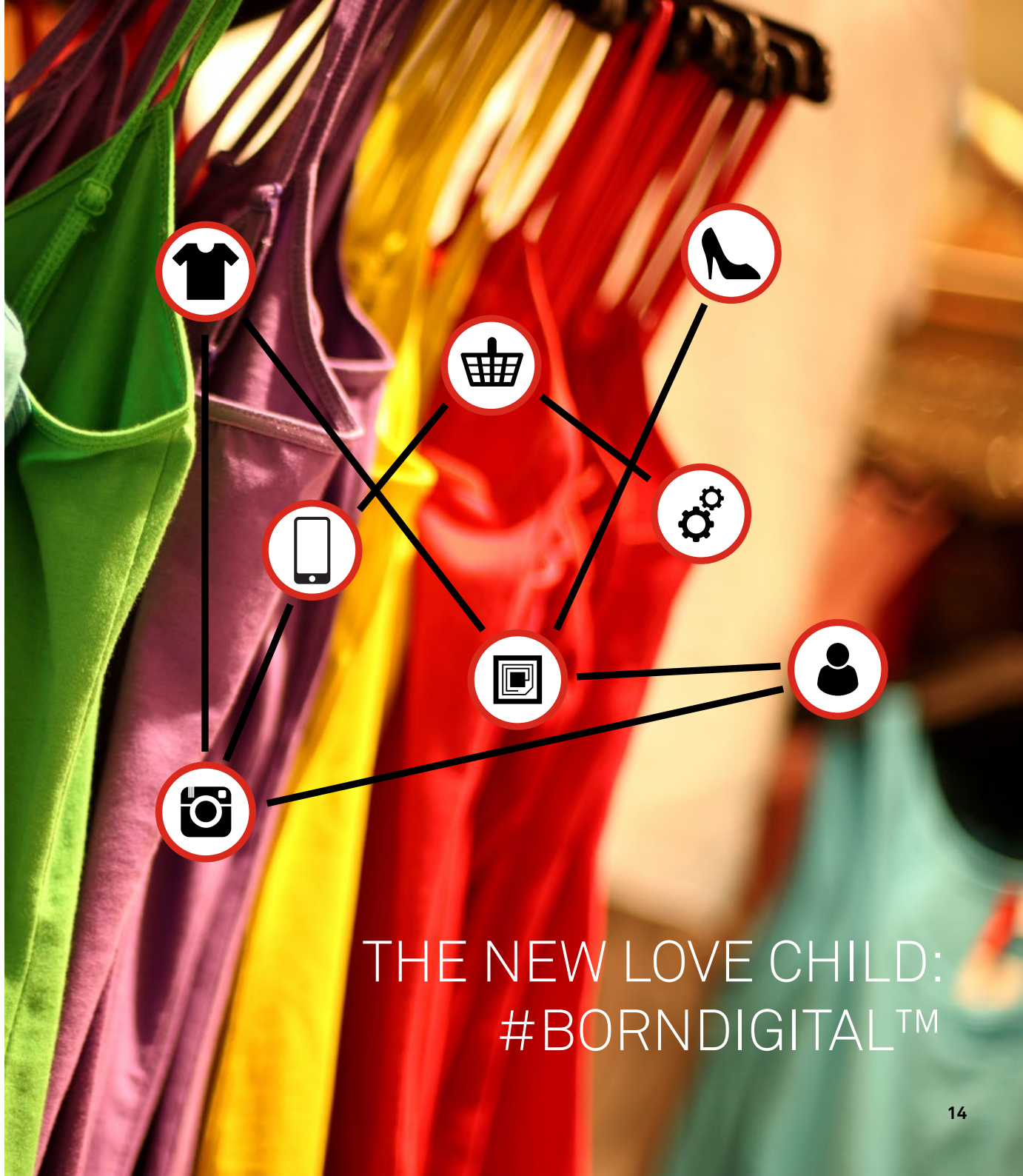
Like Apple, Amazon and Google with their data ecosystems.

Apparel does digital. But until now it has not been digital.

All of this is set to change with fashion, footwear and luxury products that are #BornDigital™. Apparel will become a leader in the broader trend as the Internet of Things comes to the world of manufactured goods.

Smarter apparel products can now be #BornDigital™. This means they're manufactured with added software capabilities, which makes them more intelligent, more interactive, more personalized and more valuable to consumers and brands.

Avery Dennison, the world's leading provider of label and tag solutions to apparel and footwear brands (and a packaging giant across many other industries), has teamed up with IoT software pioneer EVRYTHNG, to help brands digitize their products and connect them to the web. Avery Dennison's RBIS division supplies the actual labels to the world's fashion, sports and luxury designer brands; as well as tags, tickets and packaging. Increasingly this includes RFID technologies for item-level identification in manufacturing, logistics and retail. By launching the Janela™ Smart Products Platform powered by EVRYTHNG, Avery Dennison brings 10 billion individual items of apparel and footwear into the Internet of Things.



THE NEW LOVE CHILD: #BORNDIGITAL™

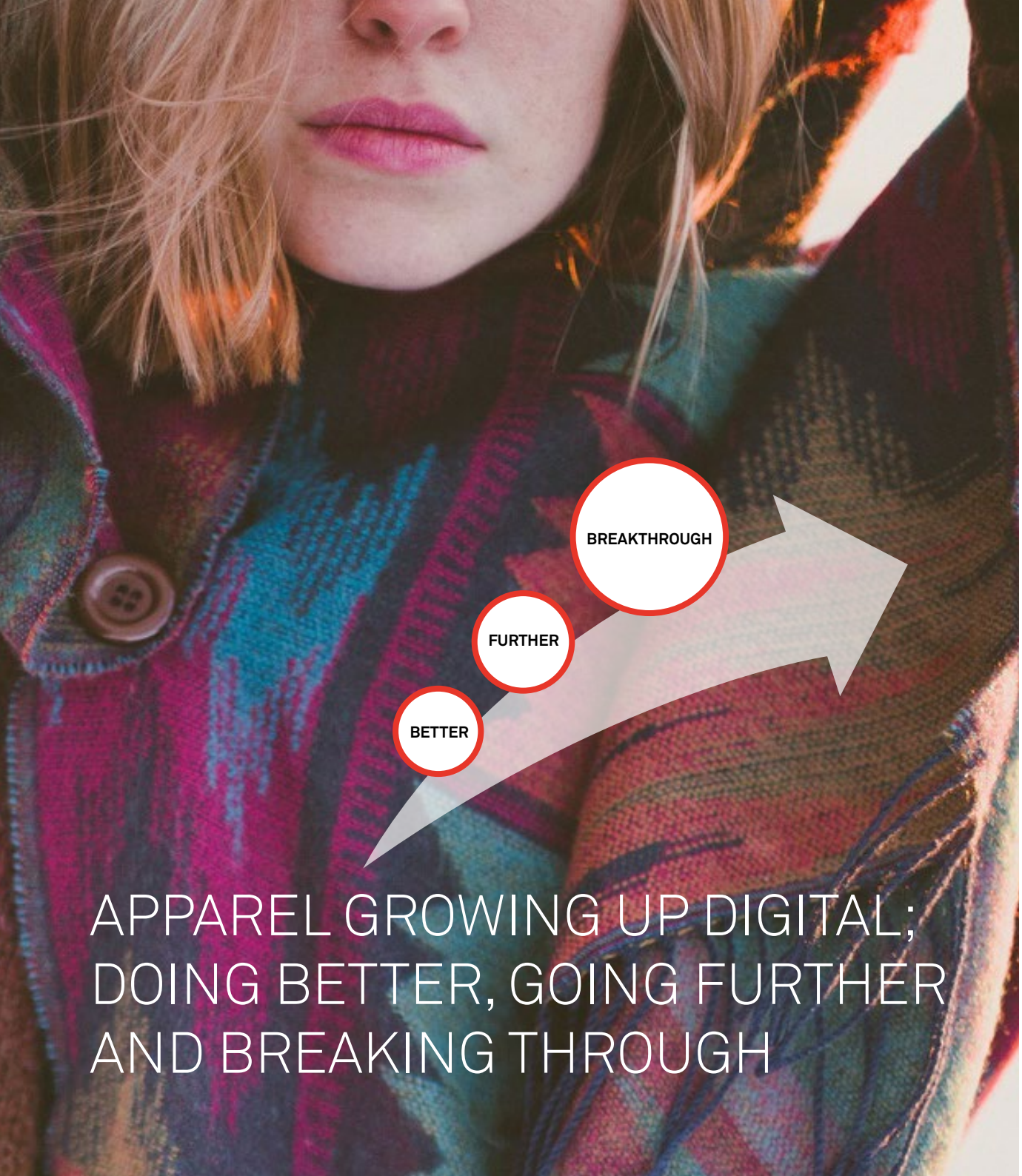
Being part of the Internet of Things means each apparel item connects to an intelligent, software brain in the cloud, which can trigger real-time experiences for consumers, and valuable new insights for brands, whenever people connect to products using devices like a smartphone. It means brands can now turn all their products into an owned digital media platform for direct consumer relationships and smarter business operations.

A product is #BornDigital™ firstly because it has a unique code that identifies it. Not a barcode that identifies its model number or SKU, but a unique code for that individual item, like the license plate on your car. In effect, it's the end of anonymous mass production. This mirrors digital developments like Bitcoin, which creates value through assigning a 'limited edition' identity to individual digital objects rather than a limitless valueless replication.

This physical code stays with the item from the factory floor, through the supply chain, to the retailer, to the consumer's closet, and finally through to the recycler. This 'cradle-to-cradle' approach means it is important that the identity is managed by a horizontal industry platform, not one that is proprietary to a manufacturer or even a multi-brand retailer. So the second important ingredient to the #BornDigital™ revolution is achieving the critical mass adoption by brands to support this. Only a company like Avery Dennison, who already supplies major global fashion and retail brands with billions of labels, tags and packaging items, can do this.

Thirdly, and perhaps most importantly of all, to turn a physical identity into a universally accessible digital identity, it must also be created as part of the web. It can't live in a closed database somewhere, like the government car license plate database that your insurer can interrogate. It must be a web-addressable information object, accessed through open standards and cloud APIs; an item that has the equivalent of its own web page or social network profile. And so this dynamic data profile that represents your piece of clothing or footwear can tap into the full range of the vast interconnected information ecosystem we call the web, including providers of services, applications, cloud processing, marketing, content and rewards.

Why is this important? A few examples: this digital object can carry a set of permissions, events, locations and interactions that allow it to be associated with content (where and how the purse is made), certificates of authenticity and ownership, washing or recycling instructions, or the ability to re-order a replacement direct from the brand. All of which can accessed from the garment using the nearest digital device, like a smartphone. The possibilities are as limitless as the web.



APPAREL GROWING UP DIGITAL; DOING BETTER, GOING FURTHER AND BREAKING THROUGH

We see three levels of innovation emerging with Fashion, Performance and Luxury apparel items being #BornDigital™:

BETTER: enhancing the existing use of digital to engage consumers, share content, sell through digital channels and gain customer data.

FURTHER: doing what fashion, sports and luxury could not previously do. In the supply chain through to retail all the way to recycling: identify and authenticate an individual product, collect better and richer data, leverage this to build stronger relationships and drive repeat sales and engagement.

BREAKTHROUGH: truly disruptive technologies unlock innovation at the level of the business model, lifestyle behavior and concept rather than just greater effectiveness and competition within existing models. Like the smartphone camera that enabled not just Nokia (and now Apple and Samsung) to thrive, but also paved the way for new models like Instagram, the selfie and Google Photos.

DOING BETTER

By better we mean: enhancing the existing uses of digital to engage consumers, share content, sell through digital channels and gain customer data.

BETTER CONTENT

Content is already a huge part of apparel marketing.

Storytelling content builds emotional brand values like Kate Spade's cinematic short films. With a #BornDigital™ garment you might get an exclusive preview of this content, or access to extra content like 'the making of'.

Content can also tell the story of an item's provenance, craft, and making; which is vital to luxury retailing, especially in new, high-growth markets like China. With #BornDigital™ items, content can be associated with each item as appropriate and accessed via mobile, when browsing or when posting about the item.

User content, like reviews, tweets, personal lookbooks and selfies provide social proof that clinches decisions. These are a key feature of online retailing (the 'Amazon review') but now can be accessed via the physical garment too.

Influencer-generated content from vloggers and Instagrammers is also critical to driving apparel sales. Research shows that Pinterest engagement is 36% higher if a price is included; with a #BornDigital™ item, reviewers could auto-load details, links and exclusive photography straight from the label.

BETTER APPS

Apparel apps are a booming area of commerce and creativity.

'Get the look' apps will now be able to load content straight from the garment and also swipe a product instore to see looks put together featuring that item.

Apps will also be able to address new needs like community – if Harley can have an owners' club, why not Alexander McQueen biker jacket owners? That may sound tenuous - until you start to think of lifestyle applications: dating, fashion fan meetups, party invitations from the brand, and so on.

One small tech facility can build a thousand applications. Just the accelerometer gave rise to most of today's fitness wearables; maps and GPS gave rise to thousands of location-based services. Being able to connect to apparel items as unique digital objects will have many new uses: some creative, some commercial, and certainly some that seem a bit crazy – like Foursquare would have sounded before it became successful.

BETTER INSTORE EXPERIENCES

Assisted shopping apps, for instance those in store that guide people or provide details and offers, will now be able to respond to individual products – and apps can also carry user details - so imagine you could swipe to see if you'd won this shirt or generate a best price based on your purchase history.

Items you are wearing – or have at home and have registered - will be able to trigger inspiration content for new outfits and combinations, as well as loyalty discounts to thank you for coming back to buy again. All data-rich interactions. The evidence shows that while people are wary about sharing data until incentivized, but (within reason) are happy to do so with brands they trust, not to have to read the small print.

The Burberrys and Topshops of this world will have a field day on new interactive experiences. High-end luxury may find new uses in 'clienteling' (where the Chanel retail assistant holds the iPad as a service and show tool). Mainstream retailers like Uniqlo and H&M will find ways to target promotions and offers in store much more precisely – offering existing customers only deals and styles that are relevant to their tastes and wallets.

You could tell some of this from a digital version of a barcode. But the individual identity means you can tell, for instance, if this product was bought at launch or in the sale, what it was bought along with, and where it was bought.

Today's digital mirrors can show you the item you are trying on in different colors. Tomorrow's digital mirrors could be able to show you the nearest equivalents of your current wardrobe in the new collection.

BETTER ECOMMERCE/ M-COMMERCE/ OMNICHANNEL RETAIL

Ecommerce with digital identities could provide a more seamless experience that continues into your home and your use of the item. For instance, tracking back to purchases to check laundering instructions, or view outfit suggestions.

To date, ecommerce has struggled to balance personalization and efficiency. And has tended to personalize only the advertising so far (try searching for a new television and you'll be bombarded with re-targeting offers for weeks). There may be new ways to build efficient personalization of the actual web experience when a cloud of my product choices (#BornDigital™ and addressable on the web) can build a kind of avatar of me on the web. It wouldn't work for all categories, but apparel choices are probably more robustly predictive than most of preferences within apparel and beyond.

The underlying engine of ecommerce is data. It's worth repeating the quote from the CEO of Under Armour, as this shines a light on the true potential of the vast data set that will be unleashed when every product has a digital identity:

"Our belief is data is the new oil. You think it's a coincidence Google or Amazon is who you'd bet on? 40% of their revenue is attributed to purchase history... The companies who will win are those using math."[20]

Clearly, the principal application could be to ecommerce, and in the early stages the biggest win will probably be brand attraction, retention, loyalty, intimacy and repeated custom – exactly what is enabled by linking product identities to people.

One other whole field of application of the unique identifier is a system knowing that a product is mine for collection. Click-and-Collect might involve one swipe of a credit card or mobile payment to access my clothes from a robotic automated storage system (as retailer Hointer has pioneered). You can imagine the same system working well for dry cleaning or hotels (see also 'the digital laundromat' in section C).

You could also bookmark products that you like in a virtual shopping basket for later selection, and then either collect or request ecommerce fulfillment. You can do some of this with a barcode perhaps, but a single item identity in this new system means that a particular pair of shoes could be digitally marked as reserved in the stockroom. It's a small step until you consider what it is like in a busy shoe store on a Saturday afternoon with staff on walkie talkies rushing back to check what is available in which size to try on.

With fast fashion and hot luxury items in scarce supply (buy it now or it might not be here in a week) an additional feature could be a small deposit to reserve an item for a set period as yours. Or perhaps you might want to reserve an item for a gift, giving you time to check that the recipient doesn't already own it, and that it is to their taste.

The value of any brand or retailer knowing a history of your past purchases - including not only their brands and products but most of your whole wardrobe - would be beyond compare.

Negotiating the user permissions and privacy implications are critical success factors, as is security of data. But IoT cloud software like EVRYTHNG, powering Avery Dennison's Janela™ platform, has the right kind of fine-grained access controls and secure

permission profiles in place ready to be used. This smart product system is also made for shopping with mobile.

Consumers will be able to connect to a worldwide web of offers, content and services by interacting with #BornDigital™ products. And these interactions will be efficient and inexpensive to develop because those digitized things are born on the web, in easy reach of cloud processing, applications and universal standards.

Mobiles aren't just data devices though; they are also portals into social channels, and windows (through the camera, and GPS, for example) into daily life. If Burberry can partner with Snapchat today (offering 'Snapcodes' to their customers), imagine what they can do tomorrow with web-connected labels on #BornDigital™ products.

BETTER SOCIAL MEDIA

The individual items now have an online profile – almost like a Facebook profile. They will be able to associate with other products and also with people. I can like my jacket - and perhaps my jacket can like me.

This is already largely the case in social media for apparel, where people 'pin' their purchases, wish lists or distant objects of desire. It's just that the facility to do this in seconds with a mobile and a label will hugely amplify this usage. And as the item exists in the web as a unique, addressable object, these individual uplinks will be able to link to other content, posts, 'get the look' ensembles and so on.

BETTER PERSONALIZATION

NikeiD is already a proven success in mass personalization and custom manufacturing at scale. With the digital label, such personalization 2.0 products will be able to carry their identity with them should you want to reorder or share with someone who likes the sneakers you designed.

But I don't need to be the designer: my jacket might be #79/100 limited edition made with a particular color or trim. Apparel chains can use local reordering (as opposed to high quanitity initial runs in offshored factories) using suppliers with sophisticated CAD and computerized mills.

So this limited edition idea may not have to wait for clothes to be 3D printed (although things will get really interesting at that point). And meanwhile, you'll be able to watch my jacket's social life unfold as it gets tagged in photographs.

BETTER PROMOTIONS, RECOMMENDATIONS, OFFERS

Everybody hates 'junk' promotions and spam. Yet everyone loves their favorite brand cutting them an exclusive deal on stuff they love and would probably buy anyway. For one person that's Canon camera lenses; for another, Prada shoes.

US$28.2bn (£20bn) is spent a year in the UK alone making promotional offers to consumers[21] - and the vast majority of these are irrelevant to that person on the receiving end at that moment. Even if they love that item, maybe they just bought one. Only granular, permission-based data associating people with their existing purchases can solve this and the Internet of Things can do this at scale, with relatively little additional cost or complexity.

The beautiful coincidence is that the brands that we love are among the few parties that many would give permission to – provided they respect our trust. In fact, if you throw in community and newsletter type content, it's a no-brainer. What road racing nut wouldn't want that sort of relationship with ultimate bicycle brand Rapha?

BETTER RETURNS, TRACKING, AUTHENTICATION

Apparel chains lose out heavily to counterfeiting every year. It's not just a few cheap knock offs - it's an industrial-scale problem. According to a recent EU study, counterfeits cost European brands alone US$31.92bn (€28bn) a year[22]. To put it another way European brands lose 9.7% of revenue this way.

Counterfeits cost European brands alone US$31.92bn (€28bn) a year

A particular concern for consumers can be buying online from an unknown 'bargain' retailer or buying second hand. How can you then know for sure it is the real thing? With #BornDigital™ products, the authenticity could be verified, potentially driving more online shopping, as in some markets (China notably) consumers are wary of buying luxury good online for this reason.

Another use case would be criminals returning fake goods (as if authentic) for refund at outlets, again something that could now be checked. According to the National Retail Federation, return fraud cost US retailers $11bn annually [23]. 10% of returns without a receipt are fraudulent, so 85% of retailers now require shoppers to show ID when making returns[24]. Instead, they could just ask the item ID to check where it was bought!

BETTER SUPPLY CHAIN, STOCK AND SALES DATA

You would think these days that EPOS systems and inventory and modern logistics meant that companies knew what they are selling where. But in large parts of the world this can still be an exercise in guesswork. Being able to truly track the flow of goods through this whole chain will have numerous benefits, including more accurate matching of stock to demand, resulting in greater profits and less wastage, or the need to discount aggressively to clear stock through outlets or flash sales. Additionally, it would provide data analytics to optimize marketing and merchandising.

BETTER RECYCLING

In future, customers will be able to interact with the label to take up Levi's recent global offer of promotional rewards to all those who recycle their Levi's jeans. Marks & Spencer carried such an offer (in partnership with Oxfam in the UK) and made US$10m (£7m) profit in the scheme's first year through extra sales of the new coats bought as replacements[25].

Just as importantly for the end result in sustainability, a recycler will be able to access accurate information on textile composition for garments, to recycle them more effectively.

GOING FURTHER

By Further we mean: doing what fashion, sports and luxury could not previously do. In the supply chain through to retail all the way to use and end of life: identify and authenticate an individual product, collect better and richer data, leverage this to build stronger relationships driving sales, new revenues (e.g. services) and engagement.

FURTHER TO RELATIONSHIPS

Apparel brands now pride themselves on conversational commerce and social media likes, but how many (beyond boutiques and super luxury brands) have a real relationship with consumers? People do actually want a relationship with brands. In China it has become common to sell a vacation package to visit your favorite luxury brands in Italy or France, seeing behind the scenes, and offering opportunities to make purchases, too. But what if chain store and sportswear brands could build richer relationships?

To illustrate, both Mercedes (for the M-Class in the United States) and Lego (with adult fans through their Ambassador program) have consulted their consumers on the development of new products. As a result, Mercedes sold out of the M-Class before it even hit the showroom, and Lego has gone from strength to strength over the last decade.

With the digital identity embedded in a garment and the right campaign, it wouldn't be a major stretch to involve people in this way in new season development (much as a fashion house might take a few Instagrammers to their fashion shows, like Topshop; or to meet the design team).

Brands like H&M's & Other Stories are born out of collaboration with designers – it's all about putting looks together. Why not extend this relationship to fashionista consumers?

This is something Burberry demonstrated through their 'Art of the Trench' campaign, where consumers sent their street fashion photos of Burberry trench coats in real world settings. Other brands in this co-creation groove include Converse, whose finest Instagram content consists of user snaps of their shoes in exotic locations. Using existing, already-purchased items as a kind of media platform and community could extend this immensely.

FURTHER TO DAILY USAGE

What would it be worth to fashion companies to track patterns of what people actually wear, in the way that epidemiologists might study the spread of a strain of flu, or sociologists the trend to beards? Not what people buy and stuff in the closet, but what they actually wear – and for which occasions.

Formerly, fashion came from ateliers and creative directors. But now the street has as much influence to dictate what is cool, or indeed regarded as acceptable in very mainstream circles. In the 1990s, Gap was a huge beneficiary of a growing consensus in the United States that first casual Friday, and then open collar working, generally meant chinos and a blue shirt for men. That's not something marketed, it's what emerged in the real world of turning up the first casual Friday in wearing sweatpants and gradually working it out!

There would need to be a substantial benefit to the user in revealing this kind of 'what I'm wearing today' data. But where there's a win there could be a win-win. Just as consumers are happy to upload valuable running data to Nike+ and share with a wider community because you want to keep track and improve.

A prime contender could be...

FURTHER TO WHAT TO WEAR

According to a survey published in UK newspaper The Daily Mail, "it appears that women own on average, in a lifetime, 1,116 tops, 620 dresses, 310 skirts, 372 cardigans/ jumpers, 558 trousers or jeans, 248 coats or jackets and 434 pair of shoes."[26] Over a quarter of those surveyed said they bought on impulse, while 39% said they stocked up in bulk during the sales.

Apart from the storage costs, what to wear has become a quintessential modern pain point. Our parents had a limited number of outfits, especially accounting for choices for different weather conditions. The average woman today has sufficient clothing items to wear a different outfit every day of the month; but rather like cooking, the repertoire is set by habits – recipes that work – rather than limited options.

It is common for young professionals to spend the first part of the day checking meetings, email and weather purely to decide what to wear. What if applications linked to your clothes could help? Keeping track not only of handy outfit ideas for different types of occasions, but also noting that you wore that outfit last time you went to a meeting with that same person.

FURTHER TO REORDERING

DTC (direct to consumer) has long been a key strategic priority at Nike, who achieved growth of about 30% per year rising to 2015 DTC sales of $5bn[27]. Because the margin is much higher than when selling through wholesale and retail, this accounts for 22% of Nike's revenues, despite being a much smaller part of the volume sales.

To date, direct sales have mainly been ecommerce-driven, via the brand's websites, limited edition and exclusive products and personalization. With the Internet of Things another, potentially much bigger option opens up: if your running shoes are wearing out, why not order a new pair, straight from the label? And with a nice loyalty-driven 'thank you' discount to sweeten the deal?

FURTHER TO GARMENT AS PASSPORT

What if your shoes could get you into a club or event?

Not just because they fit the dress code, but because the brand sponsored the event and is letting some customers in as a thank-you. It could be free hospitality, or special services like a happy hour taxi.

All these tactics have been used by mobile operators such as Telefonica's O2, in order to make their customers feel like VIPs. They can efficiently manage and fulfill those offers because the phone is a unique digital object within a network. And now these passport promotions could also be accessed by apparel companies, through a digital label and platform that uniquely identifies an item to trigger the right privileges, rewards or transactions, at certain moments in time.

FURTHER TO WEARABLES INTEGRATION

You track your run. But do you run faster in certain shoes? A triathlete might want to know this, but few will go to the trouble to track it. If your sports garments could sync with your wearable then it could be easy to build an application to do this.

Similarly, certain garments might 'perform' better in dating site profile pictures; or they might be associated with more successful job interviews. The ability for a garment to collect and apply such data all depends on it having a unique digital identity on the web. One that manages the real-time, personalized information associated with that specific product and its owner, and makes it available to create applications and experiences.

FURTHER TO SERVICES & SUPPORT

Some brands such as Howies have explored lifetime services in clothes. Their Hand-Me-Down range is guaranteed to keep zippers and other components in stock in the decades to come, so that a bag or jacket can be repaired. Meanwhile, Anya Hindmarch offers handbag customization through new tassels and funky decals drawn from 1970s consumer culture.

But imagine having the service relationship with your preferred apparel brand that you might have with a luxury car dealership or hotel. Forgotten your favorite marathon shoes when you packed? Need to emergency dryclean a tux?

With a deeper level of customer relationship, whole new service levels are possible, just like extended warrantees and help for consumer IT brands. These interactions can be about value (like AppleCare) or loyalty (like Genius Bar), or indeed a bit of both.

FURTHER TO FIT MODELING

Data quoted earlier from QCut suggests the average woman shopping for jeans tries on 11 pairs. Fit is a huge issue in clothing, particularly for women, who are also more critical about achieving a flattering fit ("does my butt look big in this?"). In pioneering their digital direct sales Levi's found that returns were much higher from women than men, with the implication that men were more likely to put up with a pair of ill-fitting jeans than women.

Your clothes could carry the data that could create a perfect fit model just for you, based on either user input on 'what fits best at the moment', or indeed using selfies and other very accessible means. The clothing in effect becomes a virtual tape measure.

No current system could compete with this, not even measurements being stored on file (which might be outdated after a Thanksgiving break, or trip to a fitness bootcamp). Nor would any system of measurement be as detailed as knowing the exact 'cut'.

The next step would be to design and manufacture to order – a virtual tailoring service based purely on what fits best at the moment (no need to check the size or fabric stretch, the digital identity could carry all that).

FURTHER TO BIG DATA

How could all this data help?

Predictive analytics has been used to monitor patterns of telephone use, how we type on the screen to detect bank fraud, and even smartphone data to know if you're coming down with the flu before you do (like Ginger.io). In aggregate, could individual garment-based analytics reveal a lot about economic confidence, or likely retail sales next week? Could it be used to plan ranges or fine-tune merchandising or pricing? Understand which colors are rising in popularity? What prices are paid through a garment's lifetime, from primary retail through to resale on eBay or in charity stores? The general principle is, as previously stated, that "data is the new oil".

FURTHER TO CRADLE TO CRADLE

The ideal in sustainability is not to just recycle, but to design each product as 'food or fuel' for another product in future. This is called 'upcycling', as described in the bestselling book Cradle to Cradle by McDonough and Braungart[28].

The theory is great, but how do we create a second supply chain to capture and redirect these resources? It works well when a large corporate (for example, UK postal service Royal Mail) designs uniforms with onward use (bicycle bags) in mind. But what happens when it is sold to the ordinary individual? If it can be identified it can be routed, as surely as if it had a stamp and address on it.

BREAKING THROUGH

Disruptive technologies that unlock business model, lifestyle behavior and concept innovation, rather than just create greater effectiveness and competition within existing models. For instance, the smartphone camera enabled companies like Nokia, Apple and Samsung to thrive selling consumer electronics, but also gave rise to entirely new models like Instagram, the selfie and Google Photos.

These ideas are necessarily 'what ifs' but are intended to tease out the implications of the Internet of Things in apparel still further.

INDIVIDUAL PRICING

Nike gives free apparel and huge sponsorships deal to sports stars, and provides other assistance to emerging athletes. But what about the ordinary runner – or couch potato? As insurance now begins to adopt a pricing model that incentivizes individuals to become active (providing perks for the most active customers, rather than penalizing the less active) could sports apparel take the same approach? Just as someone's social influence, location and network might reflect a greater true value to a fashion. Something the sample sales know: seeding not just old stock but new lines in trendy areas.

The individualized price model requires data about the buyer, the product and the lifetime value. All of which will be as available for #BornDigital™ garments, just as they currently are in assessing financial risk and pricing on credit today.

THE SERVICE OF CLOTHING

Subscription models are trendy today. If you cant be bothered to pick out great items that might suit you, why not have a trusted brand like Birchbox take care of it? Or if you still want to choose the shirts but don't want to leave socks to Christmas presents then Sock Panda might be for you.

The next level of these models could be smart curating – like playlists in Spotify, applying expert buying with responsive data-rich personal picks. To up the acceptance rate from a box of stuff you don't have to keep all of; something easily enabled by product level data, mixed with user responses.

Other trendy new models could include clothing rental, which is already big in special occasion wear (Rent the Runway) and luxury handbags (Bag Borrow or Steal); or peer-to-peer rental, like AirBnB. Studies in consumption from five hundred years ago show that goods like clothing and were bought as assets and often in circulation, either in hock or in exchange or security. They were simply too great a part of your wealth to keep in the cupboard.

FASHION COACHING

Numerous fashion coaching apps, personal dressing services and so on exist to day. Not to mention the mass of fashion content, much of which could be regarded as a kind of 'self help' resource, like recipes for cooking.

Add artificial intelligence into the mix and in a few years' time everyone with a smartphone could have a personal shopper able to represent them and interact with the world of goods. All it requires is better data on clothing, trends and outfits, residing in the web in easy reach of the cloud and apps. It wouldn't be a great surprise if Google's photo app could give feedback on outfits suiting you by that stage, either from selfies or live in the changing room!

FROM LABELS TO TAGGING

What music does my jacket like? What would it cook for dinner? It's an easy question for a jacket that lives in a cloud of other user data. And tastes do cluster well – what movies, foods and books I like will all correlate fairly well with clothing, especially with a whole wardrobe, rather than just one item.

My jacket could be tagged in photos: one jacket, 100 looks. It also could have its own online life: almost a Facebook-like clothing community (and isn't that partly what Pinterest already is?). We aren't far from being able to analyze that data. Just like a

website has analytics, a jacket could have not just sales data, but also appearances in social media, comments, and likes. And if the jacket has a unique identifier and the owner has been incentivized to register it (in return for a warranty, prize or similar) this data can be aggregated and analyzed like any other.

WHAT GETS WORN?

It's a simple question, but a powerful one.

For instance, only what gets worn can be imitated. And imitating each other's fashion choices, whether consciously or not, is probably the biggest drivers of decisionmaking. Where and when it gets worn is important, too. You aren't going to bring overalls back into fashion if they are mainly worn to do DIY.

The use of apps that support or serve consumers, along with social tagging and individual registration (or brand loyalty opt-in) could bring this data into view in the same ways as TV ratings or retail behavioral data. And once the data set exists, it will be mined.

ONE OF A KIND

We buy fashion in the pursuit of individualism. Ironic if you think of it as a single, mass-produced item, but not so silly when you think of how people combine apparel items into looks, whether for going to the gym, to work, or to socialize.

Digital businesses were at one point looking like the last stage in the long transition to mechanical reproduction and loss of all individuality – when anything digital can be copied what value can it assert (not much, Napster and other digital disrupters argued). But then came Bitcoin: almost a return to the gold, and the one incorruptible original in the era of the 'Real Fake'. Crypto-currencies aren't notional stores of value in an account somewhere: if you have a Bitcoin on a memory stick, you have it. If you send it to someone they have it. You don't own it by having a copy (like an email). The value only exists in the original, like an original oil painting signed by the artist.

This is the logic of value into which the individualism of the Internet of Things inserts its items. Some will be cheap, consumable. But all in some way will touch this idea of the 'the real thing' so central to the notion of a brand. It has literal ramifications for counterfeiting or proof of ownership, for instance for insurance or in valuing your less liquid assets. But it also signals a new age past the age of mass production: that is not a shirt, it is now 'my shirt'.

This introduces the idea of digital possession. When you buy something you hand over cash and receive the physical item in exchange. But once you connect your unique digital identity (a social login, for example), to the unique digital identity of the product, then you are, in effect, taking virtual ownership of it too. This unlocks access to whatever personalized digital extras, services, content and privileges that the brand or retailer decides should come with it.

STEALTH FASHION

There is a growing fashion trend for more discreet, or even hidden brand logos: fashionistas are turning against 'being worn by' flashy logos, even in emerging markets. Covering the trend in a 2015 story entitled: "Why Louis Vuitton, Gucci and Prada are in trouble", the *Washington Post* quoted Johann Rupert, CEO of Richemont (parent company of luxury brands like Cartier):

> *"This is really what keeps me up at night. Because people with money will not wish to show it. If your child's best friend's parents go unemployed, you don't want to buy a car or anything showy."*[29]

But what if an apparel item could say everything without showing anything? What if this was possible because you had hidden content in digital tags, like your social media profile or even your photo stream? You would fulfill the purpose of sending subtle signals about your taste and lifestyle, but only to your intended audience, not to someone outside that circle.

SMART LAUNDARY

Hands up if you've ever lost a jacket at the dry cleaner's? It is as unlikely to happen tomorrow as FedEx losing track of your package. Laundry services are set to make a big return, offering an Uber-like convenience (who wants to wash or iron if it can be conveniently avoided?). They offer huge sustainability gains as larger, more efficient laundering facilities can be made almost zero-waste and very low energy.

The key, just as with Uber, could be smart tagged clothing. It knows it's mine. It knows how it needs to be handled, and even where it lives.

And once you enable data from one Born Digital product to connect with the ecosystem of other smart apps and products via the web, this creates a powerful network effect. Products can start working together in new ways: a connected washing machine gets smarter by talking to the packages of laundry detergent and the shirts that go in it. Consumers can connect more cleverly to the things they own and brands become closer.

LOCAL AND #BORNDIGITAL™

In the era of 3D printing (or computer controlled manufacturing equivalents) the apparel item as a digital code will become even more fully realized, and will also open up design to tailor levels of fit and user personalization.

THE DEATH OF FASHION

The importance of apparel will only grow in a world where Warhol's 15 minutes of fame has led us to 'selfie' being named the Oxford English Dictionary's Word of the Year in 2013; and Facebook became the 4th most valuable company in America by market cap (ahead of GE)[30].

Fashion expert Ted Polhemus described the emergence of 'Style Surfing' (also the name of a book and exhibition at the V&A) in an age of digital look-sharing and the dominance of street fashion. In Polhemus' words, 'the consumer is now the art director'. This trend will only accelerate; and with the additional rise of Athleisure and Stealth Luxury, the Apparel industry may be undergoing a destructuring and restructuring of what makes fashion fashionable, who spread its ideas, and how they are consumed and applied.

You could call this the death of fashion, in the 'skirts are now being worn below the knee' 1950s mode of centralized style dictatorship. Or you could call it a renaissance, or rebirth of fashion as a language of truly chosen and appreciated self-expression.

One thing looks certain: decision making about ranges and styles in this industry will no longer best be farmed out to experts or even 'cool hunters'. They will be found in the data: from billions of user photos and social media tags, and of course the data from tens of billions of items carrying a digital identifier in the cloud.

As fiction writer and futurist William Gibson once put it: "The future is already here — it's just not very evenly distributed."

THE NEW GENERATION: AN INTERNET OF THINGS #BORNDIGITAL™

Today 10 billion apparel items are about to be #BornDigital™. It's fitting that this is happening in fashion, sports and luxury, as these sectors have been amongst the most forward in digital innovation and digital age business.

What IoT offers is not just another string to their bow. Rather, it is a completely new opportunity space with myriad possibilities. It's as least as big a deal, judged by this initial survey of use cases, as the smart phone has been.

IoT applied to items of clothing and footwear can extend existing proven models of digital engagement. And it can go further than these existing models, because it closes the gap between physical and digital. Items will now be #BornDigital™, on the web; accessing applications, analytics and accessible to all parties in the chain. Which, as this eBook has illustrated, could even lead to whole new Uber-scale disruptors for the whole industry.

Today Apparel, tomorrow the world. Many of the models that Apparel trailblazes could soon be also applied to other passion- and engagement-led categories, like food and beverages, hobbies and consumer electronics – and onwards to all the 5-10tn manufactured physical goods made and sold every year. All consumer product companies are going to realize that their

physical goods are now serialized digital assets that can be tracked and operated as software in the cloud. Web-connected unique software identities for things will become as ubiquitous as the barcode - although in terms of capabilities and functional possibilities, the comparison is as different as an abacus and a smart phone.

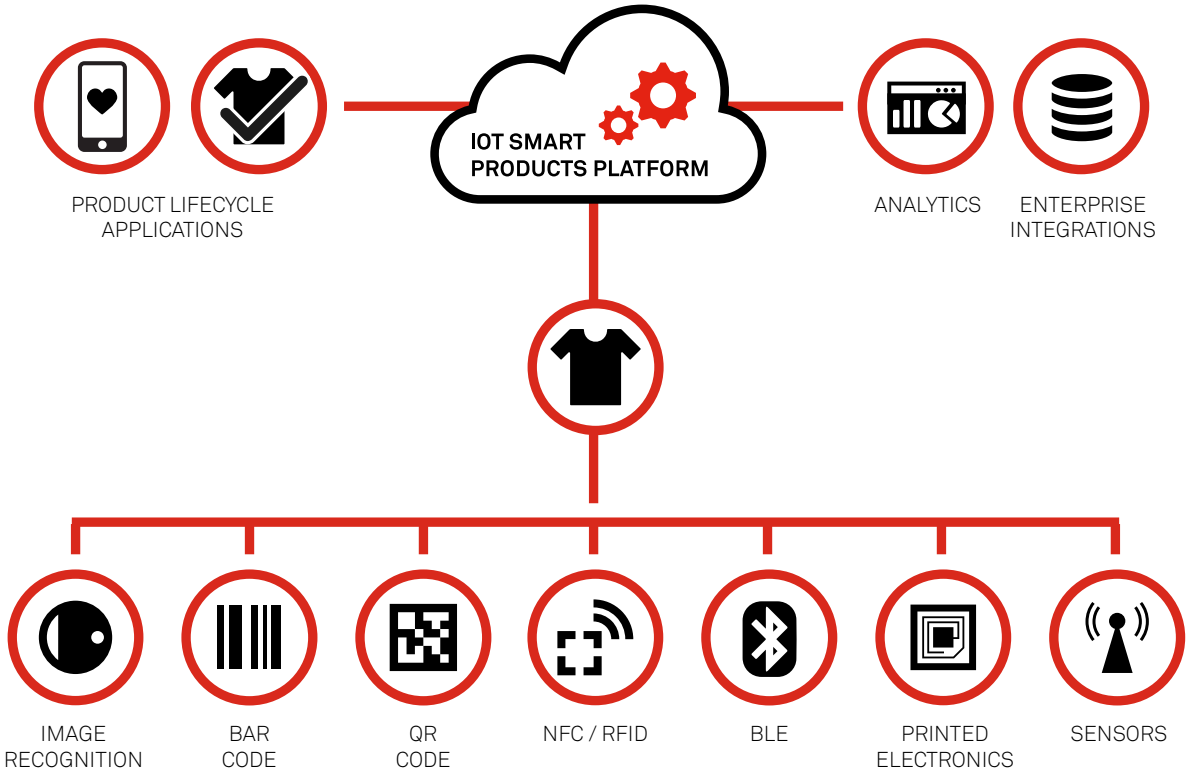
The vital central idea is that when an item is #BornDigital™, it is born into the biggest interconnected ecosystem of applications, cloud processing, payments and above all, of data and analytics. It is like throwing a switch and turning on all the physical things in entire sectors of the economy to the full business potential of the IoT. And as industries like media have discovered - having traced the same kind of path since the 1990s - there is everything to gain for those who join the revolution early (and nothing but pain for those who hold back and join too late, when the first mover advantages are all used up).

Digital transformation and business disruption is inevitable and impacts every industry. IoT connectivity, smarter products and the real-time flow of data are at the heart of this shift. Like the generation of 'Digital Natives' for whom connectivity is a natural condition of life, the future of manufacturing and retail belongs to companies with products that are #BornDigital™.

HOW IT WORKS: DIGITAL IDENTITY AND DATA MANAGEMENT FOR SMARTER PRODUCTS

Avery Dennison's Janela™ Smart Products Platform, powered by EVRYTHNG, enables apparel and footwear brands to digitize their products at point of manufacture. It does this by giving every product a unique, item-level identifier connected to a digital identity data profile in EVRYTHNG's Internet of Things (IoT) cloud-based software. Products that are '#BornDigital™' in this way can trigger mobile applications and experiences that drive consumer engagement and improve product operations.

Delivered as a highly scalable and secure Platform-as-a-Service, Janela™ powered by EVRYTHNG has an out-of-the-box intuitive and customizable management portal with dashboard, developer tools and integration connectors to help brands launch smart product applications quickly and easily. Apparel, footwear and accessories can be enhanced with any physical tags or labels, which act as digital triggers once they are scanned by a smartphone or reader.



How Do Apparel and Footwear Become Smart?

There are 5 key steps:

1. Add Unique Tag Identifiers
The platform software connects with any on-product labels or tags, including QR and bar codes, RFID and NFC chips, printed electronics and sensors. These identifiers are the trigger to the product's digital self, and initiate the experience for the user interacting with the item.

2. Create Smart Product Identities
Every item and SKU is given a unique, secure identity in the cloud. Rich individual profiles can be created with detailed product information, such as its provenance, authenticity, materials composition or destination.

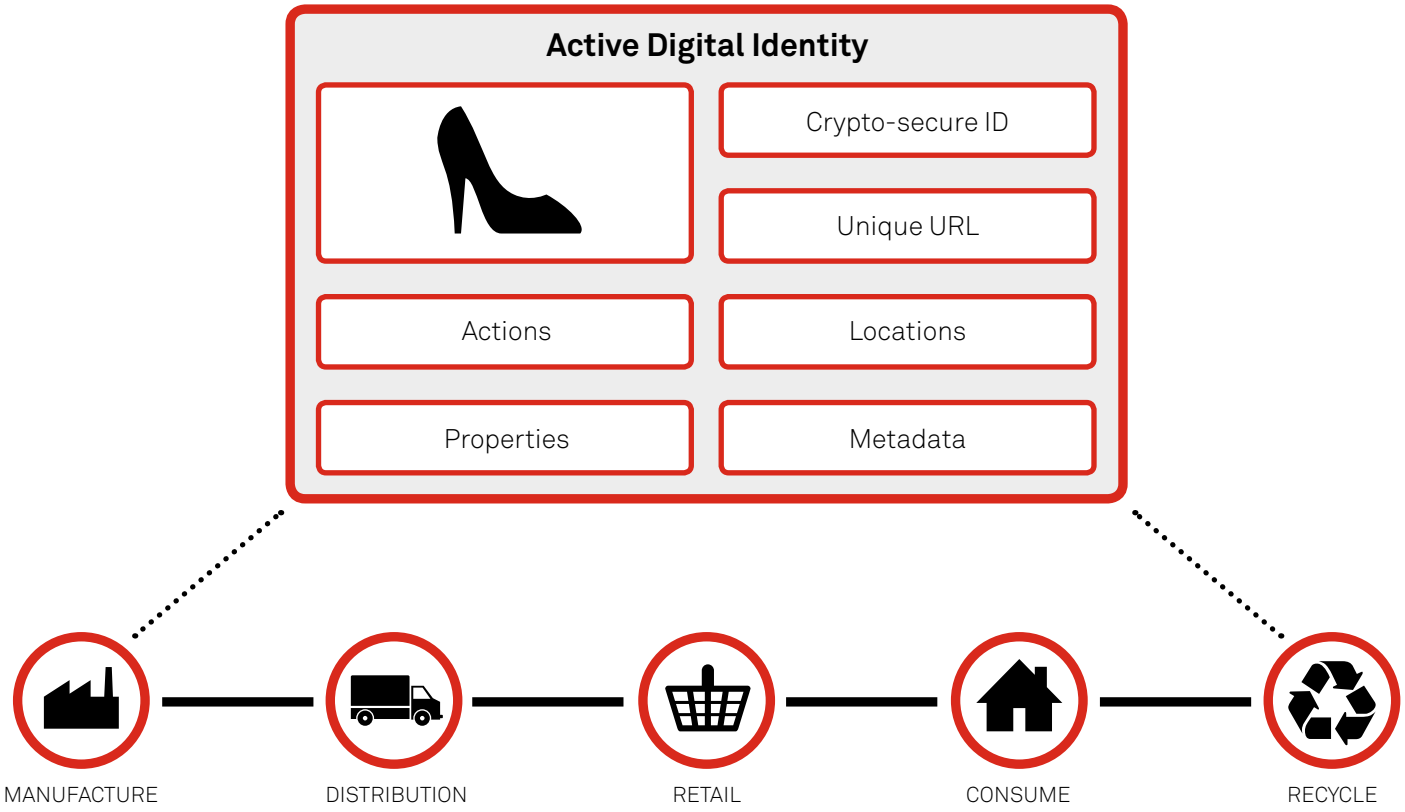
3. Manage Real-Time Data & Program Actions
Software rules are setup in the cloud to define the user experience when a specific item is scanned using a smartphone or RFID reader. Personalized digital content can be delivered to the user's smartphone browser via customizable URLs, based on contextual triggers, like location, proximity, gender, time of day, weather conditions or previous past interaction history and preferences.

4. Build Product Lifecycle Applications
Brands or retailers can use software toolkits to create web and mobile apps that allow users to scan and instantly identify individual items. Brand Protection officers can check the authenticity of products in real time, or consumers can trigger 1-2-1 interactions with the brand by scanning the physical item to unlock a digital experience.

5. Analytics & Visualizations
Brands get unrestricted real-time access to powerful analytics on their products' usage and performance, as well as their consumer profiles and behaviors. Actionable insight includes social profiles, geo-locations and preferences to help build a valuable marketing database for use in future campaigns and retargeting. Other real-time data can unlock metrics on supply chain, retail and brand protection activities.

Bridging the Physical and Digital Worlds

Every interaction with a #BornDigital™ product is captured and stored in the cloud throughout its lifecycle, from manufacture through to its recycling – forming what is known as an Active Digital Identity™ (ADI). Adding to detailed product metadata created at its 'birth', the ADI evolves as a dynamic, living profile of that item, collating locations, times, dates, and details of who has scanned the item, such as consumers, retailers or brand protection staff. Real-time data collected in ADIs is used to trigger other applications over the web.



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About EVRYTHNG
EVRYTHNG is the Internet of Things Smart Products Platform connecting consumer products to the Web, and managing real-time data to drive applications. The world's leading consumer product manufacturers work with EVRYTHNG to manage billions of intelligent online identities in the cloud for their products, deliver real-time interactive experiences and support services to consumers, and connect with the ecosystem of other applications and products in their digital lives.

About Avery Dennison Retail Branding and Information Solutions (RBIS)
Avery Dennison RBIS, a global leader in apparel and footwear industry solutions, is a $1.5 billion division of Avery Dennison (NYSE: AVY). Avery Dennison RBIS provides intelligent, creative and sustainable solutions that elevate brands and accelerate performance throughout the global retail supply chain.

Learn more
To find out more about Avery Dennison's Janela™ Smart Products Platform, powered by EVRYTHNG, visit **www.borndigital.solutions** or follow the conversation at **#BornDigital.**