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CONSUMER MARKETS – JUNE 2014

A taste of the future

The trends that could transform the chocolate industry

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The outlook for the world's chocolate industry is brighter than it has been for eight years. Euromonitor predicts the industry will enjoy a 6% rise in revenues in 2014, delivering record global revenues of US$117bn. This robust performance is driven by a 2.1% increase in volume, reflecting growing appetite for chocolate in emerging markets. The challenge for the industry's major players is how to make best use of this boom to profitably grow their volumes faster than the markets, achieve sustainable improvements in core operating margins and make the right investments – be they in capacity, acquisitions, the supply chain, marketing or R&D – to seize the significant opportunities ahead.

The single biggest factor improving the industry's performance is the fact that, at long last, the global economy is showing signs of sustained recovery. Growth in many major markets is accelerating. The stellar performers are India (expected to grow by 22% this year), Brazil (13%) and China (11%). The potential long-term growth in emerging economies – many of which have growing middle classes – is vast. To give just one example: the per capita consumption of chocolate in China is only a tenth of that in Switzerland.

Yet, as this global tour of the chocolate industry suggests, the future is not without challenges. The immediate concern is the balance between supply of cocoa and the chocolate industry's demand. Manufacturers are already confronting this issue, investing in the development of higher-yield beans, encouraging more sustainable practices, collaborating more closely with farmers to improve efficiency and exploring potential new sources of cocoa in countries such as Australia and Vietnam.

Across the world, consumer tastes remain diverse. In the US, dark chocolate is more popular than ever. In India, matching price points to income remains key to success. In China and Russia, the fashion for 'bling bling' luxury chocolate has faded, with authentic, all-natural products much in demand. Anticipating, monitoring and reacting to so many trends, which play out differently from country to country, has forced companies to become agile, flexible and responsive.

The growing demand for healthier dark chocolate is evidence of a profound challenge the industry faces across the globe. With obesity levels – and government concern about them – rising steadily, the industry is being fiercely scrutinized. Some companies are already seeking to reposition chocolate as a functional food. Health is a challenge chocolate makers cannot afford to ignore but one which, managed shrewdly, could lay the foundations for the industry's long-term prosperity.

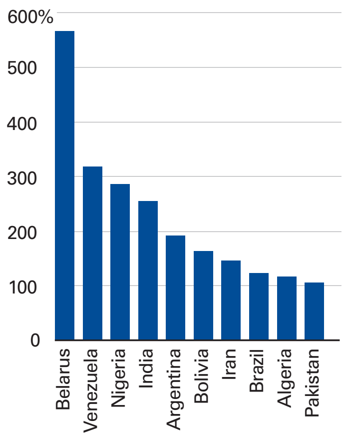
The other transformational issue the industry faces is sustainability. Companies are realizing that they need to go beyond such specific, if laudable initiatives, as only using sustainable palm oil and take a strategic view. In an age where consumers are much more environmentally conscious – and empowered, through social media, to express their concerns – the industry must show external stakeholders that it is continuing to make progress on a number of key issues, including land, labor and water.

As this report makes clear, Chocovision 2014 finds the industry at a tipping point. A rising market benefits everybody, but the real winners in the long term will be those companies that make the most of the game-changing opportunities ahead.

John A. Morris
Partner, Sector Head, Consumer Markets KPMG ELLP, UK

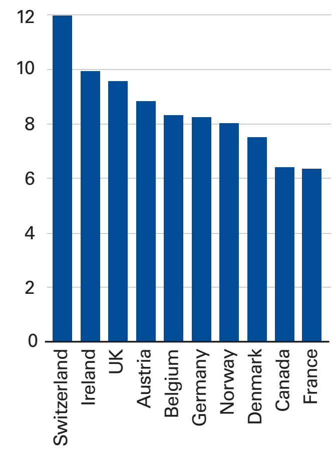
Ten fastest growing chocolate markets 2007-12

Source: Euromonitor



Ten top chocolate consuming countries in 2012 (kg/person)

Source: Luxuo luxury blog



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A taste of the future

John A. Morris on the trends that could transform the world's chocolate industry

- **Global chocolate industry revenues** to reach record US$117bn in 2014. Rising demand driven by emerging markets – and recovery in US, where chocolate market grew in 2013, for the first time in five years.
- **Eight markets drive 70% of the** world's confectionery growth, according to Mondelez: Brazil, China, Colombia, India, Russia, South Africa, Turkey and Vietnam.
- **Seasonal sales still strong**, growing across the globe in 2013.
- **Most dramatic change** in consumer taste is surge in popularity of dark chocolate. Perceived health benefits have fueled a 93% growth in launches and dark chocolate now accounts for 20% of US market.
- **Other important trends:** premiumization (demand for "moments of happiness"), convenience (portion control), value, variety of flavors (new combinations, nostalgia, artisanal ingredients).
- **Innovation in product and branding** often driven by smaller makers. Larger rivals poised to embrace customization.
- **Urgent action needed** – and being taken – to improve cocoa supply. Mars fears demand could exceed supply by 1m metric tons by 2020 if industry doesn't act. Sequencing the cocoa genome could help resolve this issue.
- **Confectionery companies, governments and NGOs** invest heavily in cocoa farmer development programs. Over US$800m is set to be invested in the coming years to improve farmer productivity. This could have a significant impact on the farming community and on company sourcing costs.
- **Companies need independently verified information** when they share the potentially huge social and economic impacts of their investments in cocoa productivity with shareholders and stakeholders.
- **Sustainability remains a key challenge.** Companies are recognizing the need to go beyond single initiatives with a strategic approach to improve yields and consumer trust.
- **With obesity a global epidemic**, the industry needs to assuage concern with healthier products that could transform the market for chocolate and deter draconian regulation.
- **Digital technology could revolutionize the supply chain** as 3D printing is a disruptive innovation that could change the behavior of companies and consumers.

The world of chocolate

Growth is back on the agenda in most of the industry's markets yet the factors driving up sales differ from market to market

United States

In 2013, chocolate consumption in the US rose for the first time in at least five years, according to Euromonitor, which forecasts that chocolate confectionery will experience constant value growth of 7% between 2013 and 2018. That said, the US ranks only 12th for per-capita consumption (only half its confectionery spend is on chocolate) and, as prices increase and portions shrink, this is unlikely to change. The private label market remains relatively underdeveloped: it has 19.1% of the food market, but only 3.6% of the chocolate segment.

20% of world's chocolate is sold in North America

Source: KPMG

Turkey

The Turkish chocolate market, valued at US$1.3bn in November 2012, will grow by 6% a year in 2013-18, predicts Euromonitor. A fairly low per-capita consumption rate (below 2kg) and a growing economy have inspired Barry Callebaut and Ferrero to open plants there. Turkey is also a priority for Godiva – acquired by Turkey's Yildiz Holdings in 2008.

Switzerland

The Swiss increased their per-capita consumption slightly to 12kg in 2013, maintaining their position as the world's leading chocolate-eaters. In 2013, the country's 18 manufacturers made progress in volume (up 3.9%) and value (up 3.1%), driven largely by exports (mainly to Germany, the UK, France and Canada), which increased 4.1% in value, despite a strong Swiss Franc. Swiss consumers have a taste for bars with no added ingredients and mini-formats.

286% Growth in Nigerian chocolate market 2007-12

Source: Euromonitor

Brazil

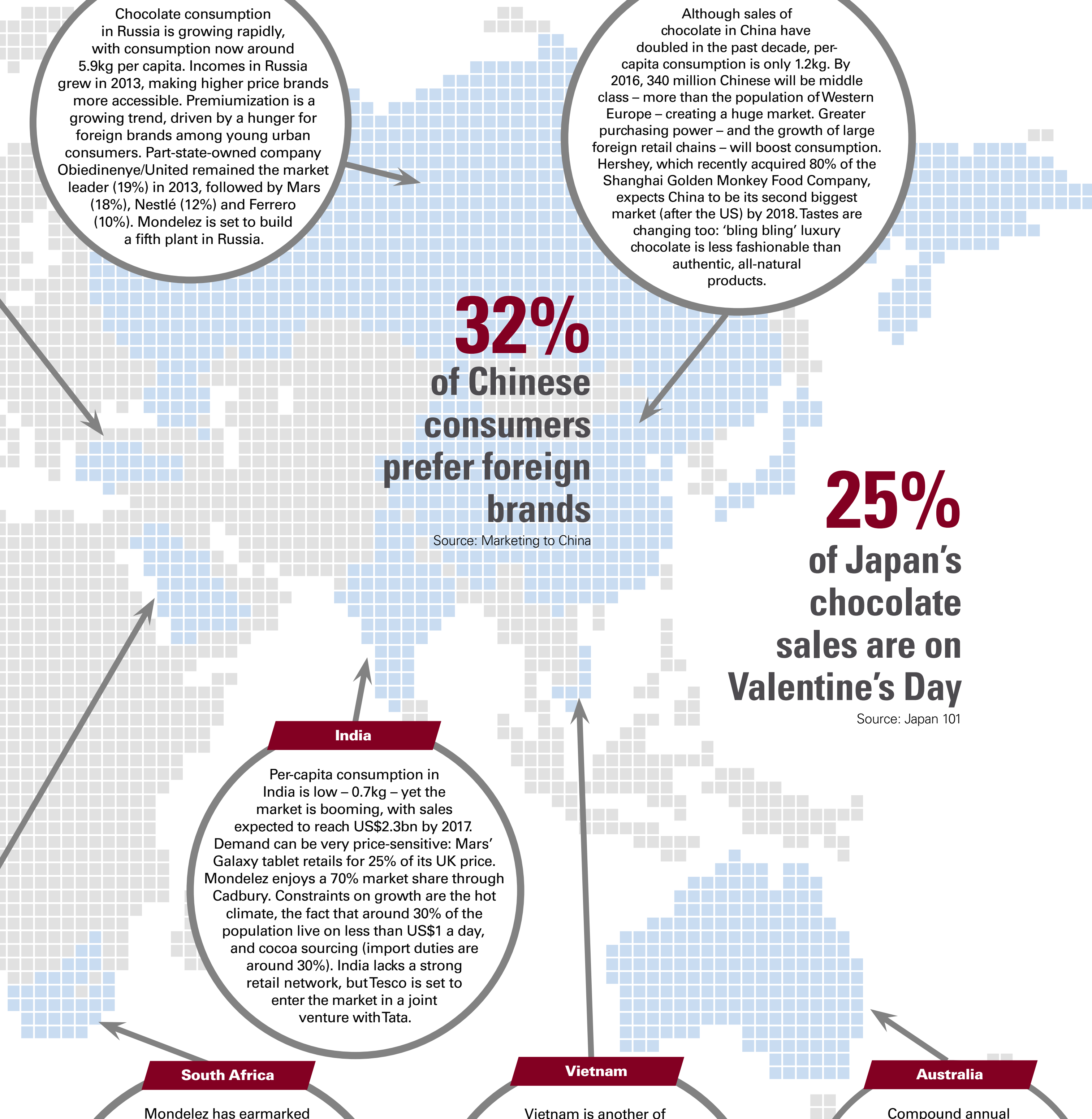
In the world's third largest chocolate market, the value of the industry's retail sales soared by 122% between 2007 and 2012. Demand is projected to increase by over 2% a year between now and 2017, with revenues growing even faster. Brazil has a dynamic economy and a growing middle class (expected to comprise 37% of the population by 2020). Premium chocolate accounts for 6% of the country's US$9bn chocolate industry. Yet Mintel fears that Brazil's reliance on cocoa imports could raise prices, deterring poorer consumers.

Saudi Arabia

Revenues are predicted to grow by 43.5% by 2016. Mars, which has 45% of the market, opened its first production facility in Saudi Arabia in 2013. Mondelez has formed a joint venture with Olayan and Khalifa Algosaibi to expand distribution. Per-capita consumption stands at 1.6kg. That should rise as consumers become more affluent and gifting becomes more popular.

550,000 metric tons of chocolate were made in Brazil in 2012

Source: Leatherhead Food Research



Russia

Chocolate consumption in Russia is growing rapidly, with consumption now around 5.9kg per capita. Incomes in Russia grew in 2013, making higher price brands more accessible. Premiumization is a growing trend, driven by a hunger for foreign brands among young urban consumers. Part-state-owned company Obiedinenye/United remained the market leader (19%) in 2013, followed by Mars (18%), Nestlé (12%) and Ferrero (10%). Mondelez is set to build a fifth plant in Russia.

China

Although sales of chocolate in China have doubled in the past decade, per-capita consumption is only 1.2kg. By 2016, 340 million Chinese will be middle class – more than the population of Western Europe – creating a huge market. Greater purchasing power – and the growth of large foreign retail chains – will boost consumption. Hershey, which recently acquired 80% of the Shanghai Golden Monkey Food Company, expects China to be its second biggest market (after the US) by 2018. Tastes are changing too: 'bling bling' luxury chocolate is less fashionable than authentic, all-natural products.

32%

of Chinese consumers prefer foreign brands

Source: Marketing to China

25%

of Japan's chocolate sales are on Valentine's Day

Source: Japan 101

India

Per-capita consumption in India is low – 0.7kg – yet the market is booming, with sales expected to reach US$2.3bn by 2017. Demand can be very price-sensitive: Mars' Galaxy tablet retails for 25% of its UK price. Mondelez enjoys a 70% market share through Cadbury. Constraints on growth are the hot climate, the fact that around 30% of the population live on less than US$1 a day, and cocoa sourcing (import duties are around 30%). India lacks a strong retail network, but Tesco is set to enter the market in a joint venture with Tata.

South Africa

Mondelez has earmarked South Africa as one of eight markets that will produce 70% of world confectionery growth. With its growing middle class, more disposable income and a vibrant economy, Frost & Sullivan predicts chocolate industry revenues could rocket from US$545m in 2013 to US$3bn by 2017. With Mondelez dominating a highly consolidated mass market, Frost & Sullivan expects significant growth in premium sales, spearheaded by Lindt. Consumer interest in locally sourced ingredients is helping such strong domestic premium brands as Ezulwini Chocolat, Huguenot Fine Chocolates and Honest Chocolate.

Vietnam

Vietnam is another of Mondelez's eight high-growth markets, but much of the buzz here is around supply. With the government planning a five-fold expansion in cocoa production by 2020, Vietnam could become a medium-sized supplier of chocolate. Mars wants the government to favor high-quality certified beans, which have a distinctive flavor that reflects the richness of the soil and frequent rainfall. Two local luxury manufacturers, Marou and Puratos Grand-Place, have emerged internationally with their products.

Australia

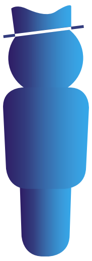
Compound annual growth of 4.7% in premium chocolate is driving the Australian market. Annual revenues have topped US$5.6bn. Mondelez has 55% of the overall market. Australia has its first single-origin chocolate producer, Daintree Estates, which grows expensive beans, rich in polyphenols and antioxidants, for its high-end brand. All the farmers in this venture are shareholders.

What's driving the chocolate consumer

Price, convenience, brand loyalty, "minutes of delight" – these are just some of the factors influencing the industry's customers

On a typical day, one billion people around the world eat chocolate. As the global economy recovers, it is becoming harder to categorize chocolate consumers. Most are driven by value, an increasing number seek luxury, and many buyers regard chocolate as an affordable treat

Many shoppers 'trade up' and buy luxury chocolate as a treat



The value consumer

In tough times, shoppers seek value for money. In the US, a National Confectioners Association survey in 2013 found that 28% of consumers had changed buying habits because of the economy. More than half of those bought confectionery less often but 30% opted for cheaper products and 27% had switched to value lines. This is why the value segment remains the largest sector of the chocolate market.

Consumers have snapped up bite-size varieties in larger, re-sealable bags that allow them to save money, reflecting what Mars identifies as a need to cut costs with a 'big night at home', without sacrificing quality. In the UK, sales of bite-size confectionery grew 40% between 2009 and 2013. No wonder Mondelez has made bite-size one of its four global innovation platforms.

The importance of value is reflected in the drive by some brands to maintain prices, even as costs rise, by offering consumers a slightly smaller bar.

In developed markets, e-commerce is a challenge for the big brands who need to offer convenience and value on the internet. In the UK, for example, only 6% of the 7m online grocery shoppers buy confectionery from a website.

In India, chocolate is overtaking chaat and tikki as an everyday sweet snack, with consumers appreciating its availability, convenience and affordability. Small portions are the norm: the average confectionery pack size is 5g, with 99% of all flexibly packaged confectionery under 50g (compared to 71% globally).

Private labels appeal to cost-conscious customers but are underdeveloped in many countries. Europe's third largest private-label manufacturer Cémoi has enjoyed strong growth in the US where, the company says, private-label chocolate sales have soared 27.5% since 2009. Prospects remain good as the market has still not caught up with Europe.

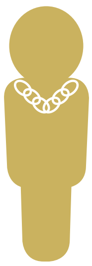
In America, growth is being driven by the consumers' quest for premium products at a lower price. "More retailers are trying to provide added value," said Michael Besso, sales and marketing director of US manufacturer Thompson Chocolate. "The quality level has been raised."

In Europe, big brands still dominate a mature chocolate market, although the private label culture is particularly strong in Scandinavia. In the UK, private labels no longer simply ape brands and rising quality has helped supermarkets compete with discount stores. This strategy is making inroads in Canada and, more slowly, in Australia.

In emerging economies, the market tends to be dominated by independent retailers and this does not favor private labels. Cémoi intends to promote its own brands in emerging markets such as Asia and South America.

In Tokyo, KitKat's 'Chocolatory' store, offering hand-made bars, has been a big hit with shoppers

Many shoppers have turned to chocolate as a "daily luxury", making it the fastest growing market segment



The luxury-seeker

Barry Callebaut says many consumers seek "more than just a product" – something that offers "one minute of pure delight – my daily luxury". This trend is fueling demand for luxury chocolate and inspired the company's Mignature range, featuring mini-chocolate, vermicelli and pearls.

Luxury is the fastest growing market segment. In the US, the Fine Chocolate Industry Association was founded in 2012 and Lindt is now looking to boost production by 8-10%, with an eye on the US and, for the first time, quality treats for the Chinese market. Nestlé's premiumization of KitKat in Japan may point the way ahead. Customers have queued for blocks outside its 'Chocolatory' store in Tokyo where it has new luxury flavors and produces 300 bars a day of a hand-made line. Demand for premium products is rising in India and Brazil – in the latter this segment is growing by around 20%.

The appetite for luxury is reflected in a surge in single-origin products which equate simplicity with quality, naturalness and health.

Yet premium brands don't monopolize the sector. In the UK, private-label Fairtrade chocolate has helped supermarkets offer quality products at competitive prices. Could this strategy pay dividends elsewhere?

The hybrid consumer

In the aftermath of the global economic crisis, Dutch financial services group Rabobank has identified a new 'hybrid consumer', a conflicted character who seeks to economize on groceries while brightening life with such everyday luxuries as premium chocolate. Usually female, they control 70% of household spending.

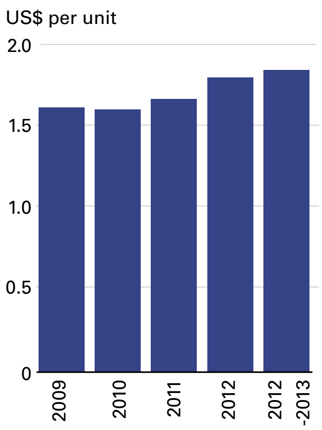
Encouraged by retailers who increasingly position themselves as premium or discount, this attitude is particularly prevalent in Australia, France, Germany, Turkey and the US. In the UK, where promotions exert such a strong pull, the gap between premium and value price points is not as significant.

The need to appeal to this kind of consumer with products that are designed to be affordable and convenient inspired Lindt to launch smaller sizes and bite-size portions called Ghirardelli Minis, so customers can trade up more often.

The hybrid consumer will become increasingly influential as millennials drive shopping: by 2020, their share of consumer spending in the US alone is expected to reach US$1trn. They are much more skeptical about – and less loyal to – brands than baby boomers and are harder to market to. Brands may need to woo millennials via celebrities and social media.

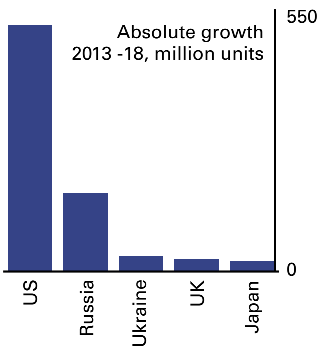
Average price for all chocolate in US market

Source: CME Group



Fastest growing markets for confectionery pouches

Source: Euromonitor International



Flavors of the moment

Consumers' tastes are evolving, as they embrace dark chocolate, reworkings of past favorites and inventive combinations of artisanal ingredients

For many health-conscious consumers in developed markets, dark chocolate is becoming their preference. In the US, which spends US$1.3bn on dark chocolate, 73% of consumers know this kind of chocolate is healthier. A Hartman Group study estimates that annual sales are growing by 7.7%. In Switzerland, dark chocolate's share rose from 22% in 2008 to 30% in 2013. China is the world's biggest dark chocolate market. As Chinese taste is less sweet, this flavor's share of retail value has more than quadrupled in five years to 34% in 2013.

In the US, Hershey aims to position dark chocolate as a lifestyle choice. The company is promoting various brands, including Scharffen Berger for wine-tasting parties, fruit-flavored Brookside as a workday treat, and its own indulgent Bliss for ritual evening relaxation. With makers investing in developing flavanols that do not taste as bitter, dark chocolate's appeal could broaden even further.

Making a premium out of caramel

Euromonitor research shows caramel is the second most popular flavor after hazelnut, and appeals to consumers who want a luxury taste in tough times. Cargill – convinced that caramel is emerging as a "fourth kind of chocolate", alongside dark, milk and white – hope to capitalize with the launch of Caramel Equilibre. A caramel-colored product, it is deemed to offer added value because it contains real caramel, a touch of salt and is made of Belgian chocolate.

A matter of taste

New flavors could extend chocolate's functionality by, for example, transforming it into a pre-lunch appetizer or an accompaniment for wine. Mondelez has sandwiched Cadbury Dairy Milk between Ritz biscuits. Natra aims to raise the profile of Spanish chocolate by combining it with olive oil, cheese and wine to trade on consumer perceptions of a healthy Mediterranean lifestyle. Carré Chocolate has worked with three Belgian breweries to create ChocOBeer, which is exactly what it sounds like: a chocolate filled with beer.

Back to the future

Consumers' nostalgia for a comforting past is inspiring innovation. America has seen a swathe of launches based on peanut butter and jelly – a traditional kids' lunchbox sandwich filling – with such products as David's PB&J Bites (individually wrapped mini-portions); Hippie Chow Peanut Butter Banana Granola (inspired by Elvis Presley) and Liddabit Sweets' PB&J Candy Bar (all natural). The wrapper for Lindt's Swiss Bittersweet dark chocolate bar reminds shoppers it is based on a recipe perfected in 1845.

The artisanal sell

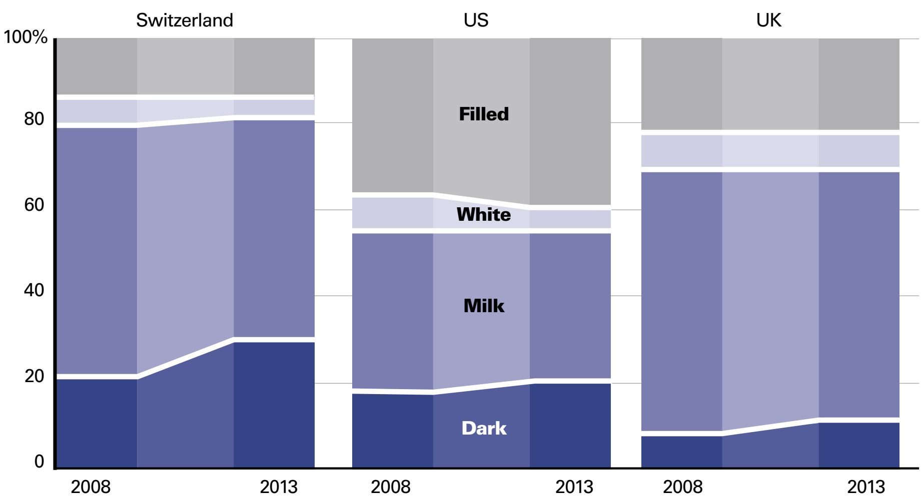
Many smaller makers draw on ancient or artisanal ingredients to give their chocolate the same kind of cachet as hand-made cheese enjoys. Wild Ophelia's Peanut Butter & Banana milk chocolate bar uses hand-picked, hand-cut dried bananas from health-conscious Uncle Mikey's Hawaiian Foods. In Massachusetts, Taza Chocolate is stone-ground by hand, using a centuries-old Mexican technique that leaves particles of cocoa bean and sugar cane in the bar for a coarse texture and intense, fruity flavors.

A bar that doesn't melt in the sun

After filing a patent last year, Mondelez is close to launching melt-resistant chocolate that can survive three hours at 104°F (40°C). Produced by re-refining the chocolate after conching, the process avoids many of the issues – including impaired taste – that stymied previous attempts to make chocolate that could be eaten all-year round in the hottest climes. If Mondelez succeeds, summer sales of chocolate could soar.

How chocolate bar sales break down in key markets

Source: The Wall Street Journal



Seasonal variations

Traditional occasions already drive a large proportion of global chocolate sales but there are plenty of opportunities to develop existing events and reach out to emerging markets

Seasonal events still drive global chocolate sales. In 2013, for the first time in five years, the seasonal market grew in every area of the world. In Brazil, Easter is estimated to account for up to 30% of annual sales. Mintel reports that the South American giant is home to 17% of the world's Easter launches, more than any other country. In the UK, where 13% of confectionery sales are seasonal, more chocolate is sold at Christmas than during the Easter period. In the US, chocolate makers enjoyed an unexpected 7.1% surge in sales in 2014 as Easter generated US$1.34bn in revenue.

The joy of Halloween

In mature markets, there is scope to develop festivals such as Halloween and Easter into broader opportunities like autumn and spring – making the most of spring has been a target for Hershey's product development.

Halloween remains relatively under-developed in Europe, especially in Italy and Spain. Last Halloween proved a lucrative event for the US chocolate industry, with sales up 5.2%. At around that time, Mars launched a program promoting sharing at less traditional events. Estimating that chocolate is eaten at only 10% of sharing occasions in the US, compared to 46% in the UK, the company created a 12-month calendar highlighting the Superbowl; a March/April 'share your favorites with your favorites' campaign; the soccer World Cup; summer movie-watching; the autumn start of the NFL season; and the winter holiday period.

Emerging opportunities

In Japan, manufacturers have spun imaginatively off an existing event to nurture a significant sales opportunity for the industry. In 1980, they collaborated to help create White Day, turning every 14 March into a day when men are encouraged to buy white chocolate for women. This balances out Valentine's Day which, in Japan, is traditionally a day when women purchase treats for men.

Easter is the biggest seasonal sales opportunity, generating US$1.34bn in revenue in the US in 2014

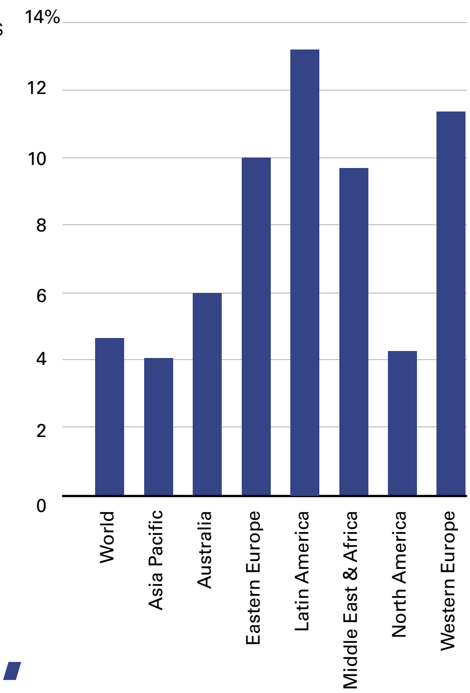
The potential for seasonal sales in emerging markets remains immense. Gifting makes up 30% of the Chinese confectionery market, which now embraces Valentine's Day and Christmas Day. Last autumn, Godiva launched its chocolate version of the mooncakes traditionally shared by the Chinese during the autumn Moon Festival, while Hershey's new Kisses Deluxe range is targeted at the country's lucrative wedding industry.

Indian hypermarket chain Spencer's Retail reported 40% growth in chocolate sales at the Hindu festival of Diwali last year, as budget-conscious consumers bought less jewellery as festive gifts. Historically, Indians have favored traditional sweets during festive occasions – but many consumers are attracted by chocolate's longevity, packaging and hygiene.

With an eye for the cultural nuances that distinguish each country, and significant investment in marketing and product development, well-known brands could significantly expand their seasonal sales in Brazil, China and India.

Year-on-year growth of seasonal chocolate market (%) 2012-2013

Source: Euromonitor



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Innovation is key

Cachet, celebrities, customization and being cool could point the way ahead for an industry that is also intrigued by the potential of 3D print

The quality and quantity of product launches prove that companies are not standing still. The industry's innovation hub is Europe, which initiated 45% of launches between 2008 and May 2013, yet Asia-Pacific (23%) and the Middle East/Africa (8%) are increasingly influential, perhaps because their consumers are more open to new flavors than those who grew up with chocolate.

Cool flavors

Todd Hale, Senior Vice-President at Nielsen, says chocolate manufacturers need to take note of Apple's success with the iPhone and learn how to "win with cool". Japanese studio Nendo exemplified Hale's thinking, launching chocolate-filled paint tubes and chocolate pencils. San Francisco's Tcho has thought outside the box: its Pure Notes (with no added ingredients) have a flavor wheel on wrappers, indicating where the product registers on a scale of flavor characteristics, such as bright, fruity, floral, earthy and nutty.

Sometimes, innovation may be simply a matter of style and brand, as when chef Jacques Torres launched Barry White, a smooth bar named after the suave soul legend.

Small companies often drive product innovation, especially in the US, where they have targeted 'selectionists', variety-seekers who take their cues from social media and often care deeply about such factors as a product's origins and how far it has been shipped. 'Selectionists' now account for around 30% of consumers in the US. Smaller companies who serve such customers can enjoy healthy price premiums over comparable mainstream products.

These microcompetitors can help the industry's larger players, who can effectively use them to outsource – and/or test – some innovations. To match their smaller rivals, large companies may need to acquire, ally or imitate.

Yet size is not always a barrier to innovation. Last year, Mondelez cut one square out of 13 million tablets of Milka, sold in France, and invited shoppers to have the missing square sent to someone else, an inspired, cost-effective mechanism for building brand equity. In a much more discreet innovation, Barry Callebaut has employed a wine-tasting expert to help them produce an origin tasting box, believing that chocolate could be marketed and made like wine. Indeed, some Belgians already gather for chocolate-tasting parties.

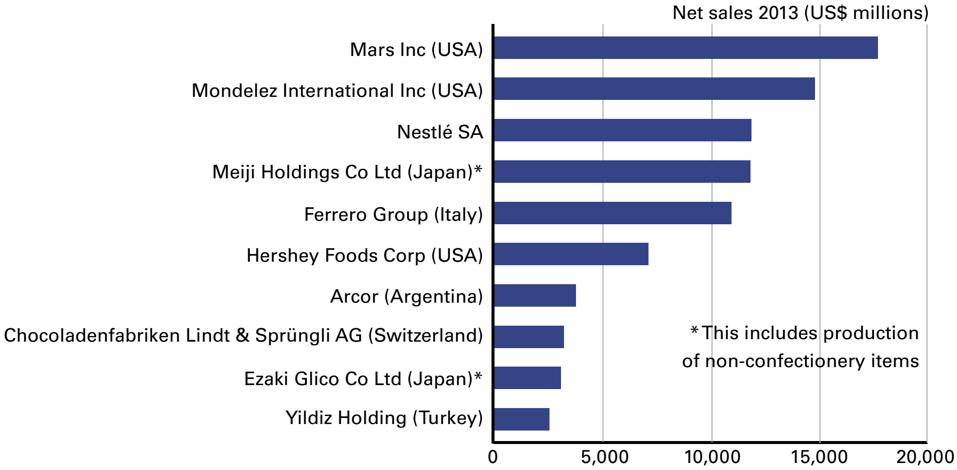
Some believe chocolate could be marketed like wine. In Belgium people hold tasting parties

> The industry's innovation hub is Europe, which initiated 45% of launches between 2008 and May 2013

In an intriguing attempt to make chocolate cool, Japanese studio Nendo has launched chocolate-filled paint tubes

Top 10 global confectionery companies that manufacture chocolate

Source: Candy Industry, January 2014



The importance of origins

With traceability a growing concern for consumers, 4.8% of chocolate products featured an origin claim last year. Some companies – notably German chocolatier Rausch Schokoladen, which claims to use only 100% pure, single-origin, fine-flavored cocoa – are using this to give their brands an exclusive cachet to appeal to connoisseurs and/or highlight their distinctive flavors, by identifying where their cocoa beans are grown.

The fame game

The world's most popular boy-band One Direction may have their own range of chocolate, but celebrity tie-ins remain an underexploited marketing approach. Movie tie-ins are common, yet usually only involve a change of wrapper. Chicago-based chocolatier Wild Ophelia has gone much further with one film tie-in: developing an entire new premium tasting range themed with Hunger Games characters and settings.

Personalizing chocolate

Customization is a strategy the industry has only begun to fully embrace. Mars has been customizing M&Ms since 2004, and Nestlé's Maison Cailler offers a sophisticated service where customers identify their 'chocolate personality'. More recently, startups such as Chocomize and Chocri, which have customization at the heart of their business, have established themselves.

Customization requires time, serious financial investment and complex manufacturing and delivery strategies, but the benefits are clear. It provides the ultimate market research. Consumers' willingness to pay a premium price can improve margins, especially for large companies who can marry it with mass production to satisfy varying tastes across global markets (and the many segments and niches within them) and respond more swiftly to changing tastes.

In the Middle East, "customization is one of the most important trends," says Helena Shpakovich, brand manager for Godiva at Moka General Trading. "Customers here demand special, unique items with customized packaging. They want their logos, names and printed ribbons manufactured to their specification." In Doha, many customers create 'chocolate theater' – spectacular bespoke products for special events – with the chocolatier at the Criollo emporium.

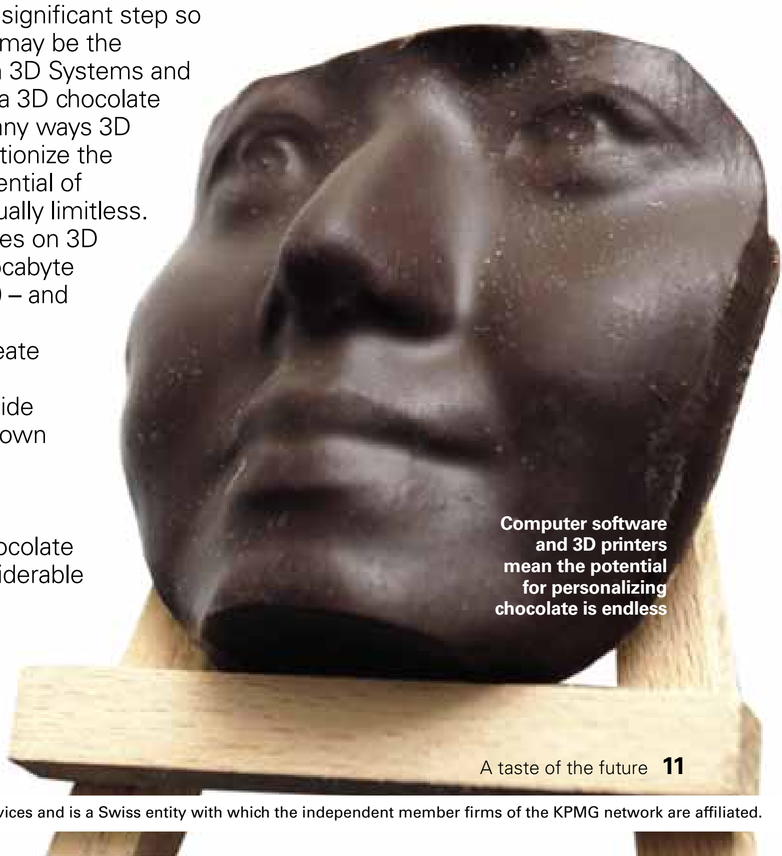
The 3D printing revolution

The industry's most significant step so far in customization may be the agreement between 3D Systems and Hershey to develop a 3D chocolate printer. There are many ways 3D printing could revolutionize the industry but the potential of customization is virtually limitless.

With headline prices on 3D devices such as Chocabyte now around US$100 – and computer software allowing users to create 3D models – some consumers may decide that producing their own chocolate designs is more satisfying than ticking boxes on a website. Printing chocolate is not easy but considerable investment is being made to fine-tune chocolate 'ink'.

The advent of 3D printing is the most exciting, disruptive and unpredictable technological change since the internet. Prototypes could be tested instantly and tweaked at the touch of a keyboard. Products mass-produced in a handful of locations could be made in every town. The old distinction between supply and manufacture could become blurred.

In this brave new world, some argue, customizing companies will need to be configured as flexible networks to mass-manufacture truly customized products in the tight timeframe consumers will demand. With the Economist magazine saying that 3D printing constitutes a third industrial revolution, such radical rethinking may be required.



Computer software and 3D printers mean the potential for personalizing chocolate is endless

Building a stable supply chain

With demand soaring, farmers looking for more profit, and a growing clamor for transparency, the need for innovation in the way the industry makes chocolate is greater than ever

The cocoa supply chain is undergoing a gradual but significant transformation. Unless urgent action is taken, Mars fears demand could outstrip supply by more than 1m metric tons by 2020. Meanwhile, an ever-louder call for transparency in production is increasing scrutiny of the industry.

Andrew Harner, Mars Inc Global Cocoa Vice-President, summed up the challenge saying: "Sustainability has moved from mainly a reputational concern to an idea that's mutual, responsible and business-critical."

Is the future of farming in danger?

The familiar threats to the supply chain – aging crops, disease, and political unrest – remain. Poor returns from cocoa have prompted some farmers to grow more lucrative crops or to find a different job. The average age of a West African cocoa farmer was recently estimated at 51. "Farming is not something most children of cocoa farmers want to take on," said Andrew McCormick, Vice-President of Cocoa Sustainability at Hershey. Finding a way of making cocoa farming a profitable, sustainable business is a challenge for industry giants – and governments.

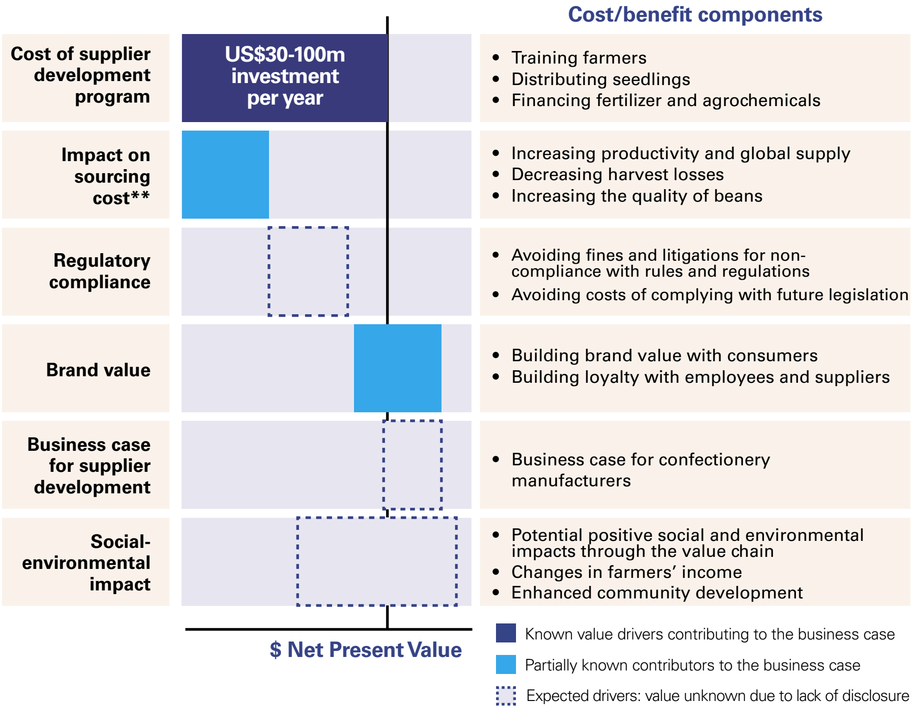
> Productivity increases when entrepreneurial farmers are trained to use inputs such as fertilizer and better cocoa varieties

To make cocoa farming more profitable, farmers need to produce more cocoa. Average productivity increases when entrepreneurial farmers are trained to use inputs such as fertilizer and better cocoa varieties. Corporate investments in training and distribution networks for fertilizer and seedlings play a crucial role in helping farmers become more prosperous and in safeguarding manufacturers' reputations.

Mars, Ferrero and Hershey have invested in such programs, while Mondelez has pledged US$400m over the next decade to help growers. A quarter of that will be invested in Ivory Coast, where it hopes to double the cocoa output of 75,000 farmers. It is estimated that manufacturers will invest US$800m in smallholder development over the next 10 years.

A cocoa supplier development program*

Source: KPMG



* This graph is based on a hypothetical company and does not refer to any existing business. The size of a bar does not relate to a value.

Digital revolution

Digital technology can help transform, the supply chain. With around 80% of West Africans having access to a cell phone, the Hershey-sponsored CocoaLink program delivers critical information to 4,000 farmers in Ghana and Ivory Coast and is facilitating feedback via field officers so project managers can analyze data in real time and make decisions promptly.

Tcho and Equal Exchange use the cloud-based software Cropster, a bean-to-bar tracking system to help farmers taste chocolate made from their beans and adjust their processes to ensure their harvest meets buyers' needs.

Gathering data about farms could help drive what Steve Retzlaff, President of Global Cocoa for Barry Callebaut, believes is the next stage of development: "Banks and other credit providers need to be encouraged to offer right-sized financial products to co-ops and farmers."

The other potential game-changer is work on sequencing the cocoa genome. This work is at an early stage but Mars has released the genetic markers for the most commonly cultivated cocoa genome and this could, some estimates suggest, increase yields by 500% and farmer incomes by 200%.

The ambition is to create drought- and disease-resistant beans that require less pesticide and faster breeding for new varieties. The genome information could also help

The right investments could enhance brands, avoid further regulation and boost productivity

reduce the bitterness of healthy flavanols and boost other nutrients.

Supplier investments

The table on p12 shows how companies can benefit from a sustainability program.

The business case for supplier development rests on enhancing brand value, avoiding further regulatory scrutiny and boosting productivity. There are also risks: if sustainability commitments are not met, companies face legal and public scrutiny as well as loss of brand value.

Investments in supplier development could transform the balance between supply and demand. If productivity improvements of trained farmers reach only 25% by 2020, the effect on sourcing costs could be significant.

At present, it is hard to know what impact the investments are having on developing cocoa production. Few of these programs report on their progress, yet such information would be valuable for shareholders, external stakeholders and the sector. Such information will help companies make better-informed decisions and optimize investments.

Ultimately, the creation of brand value drives most decisions in the confectionery business, and to protect its brands, the cocoa industry will need to be more transparent about their investments, revealing the real value of supplier development programs.

Productivity and sourcing costs

The impact of a cocoa farmer development program can be estimated, as is illustrated by the following example. Suppose the cocoa sector would successfully implement a program, additional to existing initiatives, targeting 150,000 farmers by providing them with training and distribution of better seedlings. Presuming a typical farmer has a plot size of 3 ha and initial productivity of 300 kg/ha*. The sector intervention could effectively increase productivity by 25%*. Based on these assumptions global productivity will grow by 27,000 tons in 5 years. If productivity growth resulting from the companies' intervention will take place in 5 years, there could be a surplus of cocoa in 2019-20, rather than a shortage as is currently forecasted by experts.

Due to these interventions, the price of cocoa might be reduced if the cocoa supply increases. As a result, farmers who boost their productivity will benefit, while farmers outside of the program might see their income reduced. The real challenge to the sector is to achieve long-term improvements for all actors in the supply chain.

** The data used in this example are fictitious and do not refer to any existing situation.*

Investments in training could help farmers prosper and safeguard reputations

The health of nations

With the global epidemic of obesity placing a severe strain on government budgets, the chocolate industry needs to collaborate on new strategies to help consumers' well-being

The United Nations estimates that 1.4bn adults are now obese and 350m people now suffer from diabetes. These conditions are no longer only a concern in developed Western societies: for example, a 2013 government survey found that 70% of adults in Mexico are overweight. As research suggests that this epidemic of obesity is not caused by any significant decline in physical activity, the spotlight has fallen on the food industry. Governments, who already spend 7% of their healthcare budgets on weight-related issues, are focusing on diet and the impact of such foods as chocolate.

The regulators' view

In this context, there is a great deal of uncertainty about regulators' strategies. In March 2014, an action plan from the European Union's High Level Group on Nutrition and Physical Activity hinted at the use of taxation and subsidies to encourage consumers to make the right choices and urged a complete ban on advertising to children. The UN has also advised developing nations that regulation can fight obesity.

Norway and Finland already tax chocolate and Denmark taxes saturated fats. Hungary taxes unhealthy products and France has imposed levies on soda drinks. Similar moves have been discussed in Italy, Romania and the UK. In such a climate, it is imperative that the industry confronts this issue sooner rather than later.

Concern over health is already changing consumer habits, driving a shift to dark chocolate and, in the US market, even encouraging lower consumption and a shift to snacking among customers who regard an entire chocolate bar as too much of an indulgence. In December 2012, 21% of American consumers told Mintel they ate less chocolate than the year before, with 59% motivated by weight issues. Datamonitor found that 87% of those surveyed in Western Europe were interested in products that were good for their hearts although only 29% were convinced by such claims.

The strategic response

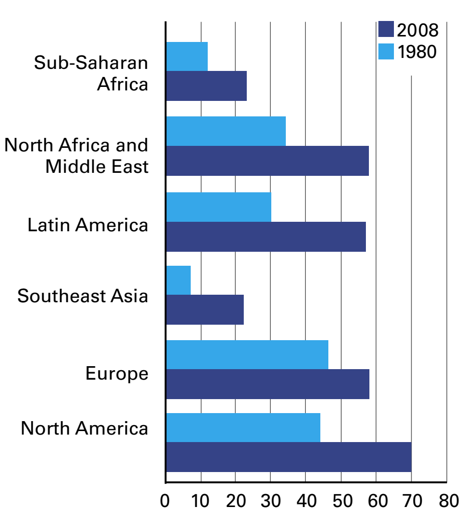
With Innova reporting a 42% increase in active health claims by cocoa and chocolate companies between 2012 and 2013, the industry is already anticipating the trend towards regulation and changing customer preferences.

The three major strategies being employed are: 1) product innovation to substitute unhealthy ingredients; 2) adjusting the marketing approach to promote products that are genuinely healthier; and 3) collaborating across the sector to jointly identify solutions.

The substitution of ingredients, such as replacing cocoa butter by natural oil derivatives and the replacement of sugar by the herb stevia, is an important innovation. Stevia featured in nearly a third of global chocolate launches in 2012/13; as a natural

Obesity: percentage of adults with body mass index greater than 25, by region

Source: Overseas Development Institute



Flavanols in cocoa beans and chocolate can improve blood pressure, keep blood vessels elastic and reduce insulin resistance in diabetics

ingredient it appeals to a growing number of consumers.

Barry Callebaut is focusing on steviol glycosides: they are at least 200 times sweeter than sugar, so chocolate's sugar content can be reduced by 80-90% and its calorific content by as much as 30%. Challenges remain: stevia doesn't have sugar's bulking effect and is costly, so a natural, non-calorific bulker must be found.

Companies should steer their product development departments not just to reduce fat, salt and sugar. They should study how their products are consumed in their customers' daily lives and jointly adjust their products.

Progress can be swift, dramatic and painless. The Dutch vegetable canning industry reduced the salt content of its entire product portfolio by 30% at once. The adjustment did not harm companies' revenues but did improve their health profile.

Chocolate will be different in 10 years – healthy fats, high levels of flavanols will be the norm

The marketing approach has changed too. The pseudo-science typified by the term 'nutraceutical' has been superseded by the idea of 'wellness'. Some consumers have assumed that products advertising reduced fat or sugar on their packaging will not taste as good so the major players may eschew such claims and make public pledges, as Cadbury has done recently in the UK, promising not to sell bars containing more than 250 calories.

Yet the drive to position chocolate as a healthy, functional food is gathering momentum. "Chocolate is a phenomenal delivery mechanism for functional ingredients," says Paul Frantellizzi, the founder of US company Good Cacao. The firm produces Coconut Omega-3, Lemon Ginger Immunity and Weight Loss Mandarin Orange dark chocolate.

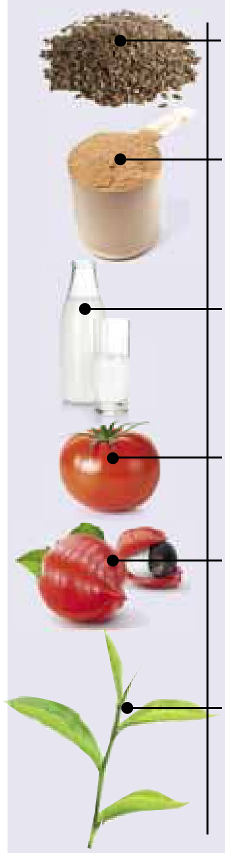
Heart of the matter

Having prohibited the advertising of chocolate's health benefits in 2010 because of inconsistent evidence, the European Food Safety Authority last year permitted Barry Callebaut to market dark chocolate produced using its flavanol-preserving Acticoa method as "maintaining the elasticity of blood vessels". Flavanols have also been shown to improve blood pressure, increase blood flow to the brain, help stroke victims and reduce insulin resistance in diabetics. Dr Howard-Yana Shapiro, Chief Agricultural Officer at Mars, has said: "The idea is that this is something that will become the norm – healthy fats, high levels of flavanols. Chocolate will become something quite different in 10, 15 or 20 years, and we are on that track now."

Companies will need to monitor the health profile of their portfolio. Nestlé is already encouraging consumers to educate themselves with an app enabling shoppers to scan its products and receive dietary advice.

In the long run, the development of a healthier bar – whatever ingredients it happens to contain – that still tastes good, may be the answer for chocolate makers, governments and consumers watching their waistlines. Yet it would help the industry achieve this goal – and to ensure that they are not surprised by the repercussions of new regulations – if companies across the sector collaborated and shared their learnings in the years ahead.

Functional ingredients that could make chocolate healthier



Fibers reduce bad cholesterol, natural laxative, regulate blood sugar levels.

Protein is a vital component of virtually every cell. The body needs a lot but cannot store it.

Micronutrients such as calcium and vitamins are needed in small doses for a range of functions.

FruitFlow is a tomato concentrate that aids blood flow.

Energy-givers such as guarana (left) extracts and botanicals can act as tonics or stimulants.

Green tea extract, green coffee extract and chia improve brain function, burn fat and are powerful antioxidants.

Sustainability:

The chocolate industry needs to manage environmental and social concerns wisely if it is to build brand value in the long term

Sustainability has been a concern for the chocolate industry for some years but the challenge is becoming broader, more complex and increasingly pressing. Without a sustainable supply chain, the industry will have nothing to sell. Without a credible story about how its wares are made, the industry may alienate millions of consumers who, as Innova's 2014 food trends report shows, want to trust the products they buy.

Without serious action to address its social and economic impacts, the industry faces unrelenting scrutiny from environmental groups, the media and governments. With such organizations as Oxfam monitoring companies with its Behind the Brands Scorecard, manufacturers know they need to take a strategic view of sustainability.

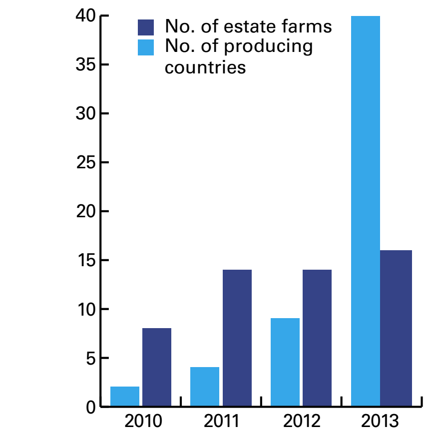
Farms in focus

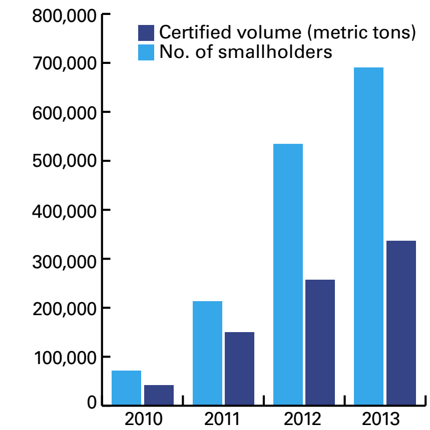
The task of creating a more sustainable model for the industry starts on the farms. Twenty per cent of cocoa is now farmed according to sustainability-related criteria, a figure certifier UTZ hopes will rise to 50% in the next decade. UTZ certifies 14% of global production, a 100-fold increase in four years. The UTZ logo features on products sold in 108 countries, with growing demand for certification in emerging markets.

Mars, Hershey, Ferrero and Natra have committed to sourcing

Boom in certified cocoa

Source: UTZ annual report





the strategic view

100% sustainable cocoa by 2020. Sustainability auditor Intertek recently suggested that 2024-2025 was a more realistic deadline, yet recommended that companies investing in their own sustainability programs must also publicly announce deadlines to gain credibility with consumers.

Managed astutely with an eye on the long term, sustainability could produce a healthier, more resilient, and profitable industry that consumers can like and trust. "Consumers are much more aware of sustainability in aspects of products and services than they were five years ago," said Andy McCormick, Vice-President of Cocoa Sustainability for Hershey, last year.

The potential impact of sustainability on brand value can be illustrated by the Dutch start-up Tony's Chocolonely. Branding its bars as 'slave-free', the company has achieved annual revenue growth of 65% over the last five years.

Sustainability is inspiring new business models. Fairtrade chocolate seller Divine Chocolate is 45% owned by a Ghana-based farmer co-operative that has two seats on the board.

The industry will progressively increase the amount of information available to consumers about its supply chain through initiatives such as QuestionMark, an app that allows shoppers to scan products in a supermarket to obtain detailed

> The industry will become more transparent, contributing to apps that enable consumers to assess how sustainable a product really is

The task of creating a more sustainable model starts on the cocoa bean farms

Case study

Helping a confectioner source cocoa more sustainably

A large consumer goods company wanted to increase the amount of certified sustainable cocoa it used and to help cocoa farmers to achieve certification. By doing so, the company would help make the farms more productive, help make the farmers more financially secure, and ensure that its supplies of cocoa would be secure and sustainable over the long term.

In order to implement the most effective sustainable sourcing strategy, the company needed in-depth analysis of the economic dynamics and cost drivers within the industry.

How KPMG helped

A team from KPMG in the Netherlands – comprising experts in sustainability, finance and business strategy – worked with KPMG colleagues in Ghana, Brazil and Indonesia. Together they provided the client with a broad-ranging analysis of the financial dynamics of cocoa certification and identified the farmers most ready for sustainability training and certification in West Africa, South America and Asia, and the most appropriate certification schemes.

Benefits to the client

KPMG's analysis enabled the company to identify the most effective strategy for supply chain intervention. It also helped the company to quantify more accurately the benefits of its sustainability program, including the number of farmers trained and subsequent increases in yield and farmer income.

Manufacturers who disclose the impact of their investments can grow the value of their brands

information about an item's sustainability and health credentials.

Looking forward, analysts note that the impact of investing in the development of cocoa farmers remains largely invisible for a wider audience.

Confectionery manufacturers will be challenged to demonstrate the value of their significant investments in supplier development to shareholders and stakeholders. By disclosing the impact of their investments, businesses can grow the value of their brands.

Innova's food trends study shows that consumers want to trust the brands they buy

A sustainable product

Reducing the environmental impact of ingredients

1 Sugar
Many leading companies have committed to sourcing all their cocoa sustainably by 2020, yet no major confectioner has yet made that kind of sweeping commitment on sugar and only 1% of global sugar uses the full Fairtrade mark.

2 Palm oil
Blamed for causing deforestation, palm oil has to be listed in ingredients in the European Union due to new food-labeling legislation. Mars has pledged to end deforestation associated with its palm oil. Mondelez recently said it has already reached its 2015 goal of sourcing 100% certified palm oil.

3 Cocoa waste
Barry Callebaut has filed a patent to grind cocoa shells into a powder to be used as a bloom inhibitor, cocoa replacement and ingredient in other foods. The company is also collaborating with UK firm James Cropper to recycle the husks into food-grade paper. In Australia, Daintree Estates is looking to develop a cocoa shell extract that capitalizes on the high levels of fiber and antioxidants in the material.

The regulatory framework

The major institutional/legal landmarks on the road to a more sustainable chocolate industry are:

In 2001, the **US Harkin-Engel protocol** obliged companies to commit to using external public standards for mitigating child labor in the cocoa chain. A lawsuit begun in 2013 that is still ongoing (at time of publication) addresses the issue of whether cocoa companies are legally accountable for acts in their supply chain.

In a separate court case, another cocoa company is requested to be **transparent** about its trade-book. These cases are adding to confectionery companies' costs.

In 2012, cocoa companies signed the **Abidjan declaration** in which they jointly agreed to implement several changes in the cocoa sector. The declaration is not actually a legally binding framework, but rather a roadmap of actions.

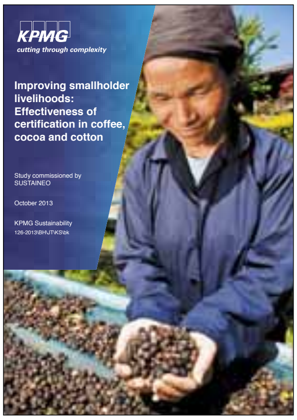
On 15 April 2014, the **European Parliament** approved legislation (Directive 2014/34/EU) that requires major companies to disclose non-financial information on issues such as the environment, social impact, diversity, corruption and human rights. This legislation follows existing initiatives such as France's Grenelle Act.

Publications

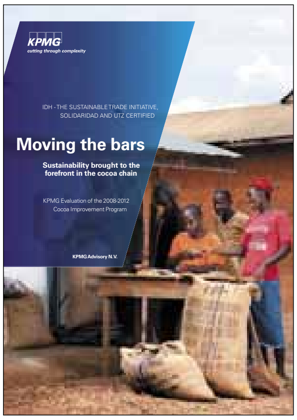
Unlocking the value of social investment
This edition of Sustainable Insight explores corporate and foundation approaches to measuring and reporting social investment, and presents a framework to help companies improve the effectiveness of social programs.

Cocoa Certification
KPMG was commissioned by The International Cocoa Organization (ICCO) to conduct a study on the costs and benefits of cocoa certification. The study focuses on the aggregated farmer and co-op level in the two main cocoa producing countries, Ivory Coast and Ghana.

The chocolate of tomorrow
In this 2012 report, KPMG warned that, although the global chocolate market remains robust and is predicted to grow, manufacturers face a rising proliferation of consumer tastes, coupled with volatility in the cocoa markets.



Improving smallholder livelihoods
This study on the coffee, cocoa and cotton sectors, shows that certification can only contribute to sustainable rural development if implementation is accompanied by farming training.



Moving the bars
This report evaluates the effectiveness of the Cocoa Improvement Program (CIP) through the analysis of data and perspectives from CIP progress reports, focusing on Ivory Coast and Ghana.

About KPMG

KPMG is a global network of professional firms providing Audit, Tax and Advisory services. We operate in 155 countries and have more than 155,000 people working in member firms around the world. The independent member firms of the KPMG network are affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. Each KPMG firm is a legally distinct and separate entity and describes itself as such.

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