

Watson-Marlow on Better Business in **Brewing**

Global Trends 2020 – 2025



PREFACE

The brewing industry is changing fast. Consumer tastes and habits have changed irrevocably. Consumers are much more health conscious, environmentally aware and concerned about the quality of what they drink. To remain competitive, brewers need to be able to brew a wide range of beer styles while maintaining a high degree of process efficiency. The pressure to produce high quality beers at the lowest cost increases every year.

In this report engineering company Watson-Marlow Fluid Technology Group (WMFTG) examine some of the core changes happening in the global industry, ranging from new technologies to changing demographics. With help from WMFTG's research we look at these areas and more, whilst exploring some of the trends developing in the next few years. We hope you find this useful.



ROD WHITE, MASTER BREWER, ASSISTANT PROFESSOR
**INTERNATIONAL CENTRE FOR BREWING SCIENCE AT
THE UNIVERSITY OF NOTTINGHAM**

CONTENTS

Executive summary	5
New challenges	6
- Consumer trends	
- Smaller batches	
- Water scarcity	
Can technology be your competitive edge?	10
Tackling water scarcity	11
Other factors in staying competitive	13
Conclusion	14



EXECUTIVE SUMMARY

Watson-Marlow Fluid Technology Group has been working with some of the largest brewers for decades, supplying them with peristaltic and sine pump technology, along with associated fluid path components within the brewing process.

In this report we explore how the brewing industry is facing new challenges. Most immediate is the change in consumer behaviour, which has led to aggressive new product development. With so many new beer products available the market is being saturated, creating a harder fight for market access.

As the international beer market and beer production grow, one clear and increasingly dominant trend has been the growth in craft beers, which is set to continue.

Recent years have witnessed slow growth for the mainstream and discounted categories of beer. This is due to rising consumer spend on premium and super-premium beers. Higher disposable incomes and changing lifestyles have encouraged people to opt for these craft and artisan or premium beers.

In 2018, the US was the second-largest beer producing country in the world, the first being China.¹ The US has witnessed a sustained rise in new craft or microbreweries, which now appear to be beating the big international brands when it comes to market growth.²

The craft beer trend is also occurring in Europe, specifically in Italy, Spain, France and the Czech Republic. Yet it took longer to develop in the UK, where consumers are now catching up.³

The global beer market is worth approximately US \$593 billion and projected to reach \$685.4 billion by 2025, the compound annual growth rate (CAGR) is 1.8%⁴ and in the following sections—through a combination of analysis, surveys and industry research—we will attempt to explain how the market is changing and what the industry can expect from now until 2025.



1. Japanese brewer Kirin Holdings Company

2. US Brewers Association Data 2018

3. McKinsey Perfect Storm in Global Beer Business

4. Allied Market Research

NEW CHALLENGES

In the beer manufacturing industry, brewers are challenged by several constraints and foremost are the disparities in manufacturing processes. When it comes to quality and processing time, varied agricultural products and fluctuating consumer demands (and distributors) mean breweries have to ensure agility in their production plant.

Consumer trends

The way consumers have been able to buy beer has been evolving for many years. As more people elect to drink it at home, beer has become synonymous with aspirational lifestyle trends akin to wine and spirit drinking cultures. As such, the range of beers available in supermarkets and grocery stores has expanded. This shift in consumer behaviour, and subsequent changes in points of purchase, has squeezed brewer margins as the larger retail stores deliver small profits to manufacturers.

Smaller batches

Working with large supermarket chains comes at a further cost to the brewer. As retailers insist on smaller batches and for low stock levels to be replenished frequently, at their own cost—operation, production and delivery logistics are becoming difficult to forecast.

These changes have resulted in a new brewery business model. As beer makers realise they are no longer able to sell stock in large volumes—or with the traditional profit margin—they must find new ways to balance volume and price.

Water scarcity

As water gradually becomes a scarce commodity, it is vital that natural resources are preserved and that unnecessary consumption is eliminated. Water scarcity has come about by many reasons including climate change, population growth and rising industrial activities. As a result there is an increased pressure in the brewing industry to reduce the amount of water that it uses.

There are a number of examples where this pressure is being met by a mixture of investment and innovation. They are typically characterised by the setting of the breweries. For example, in smaller municipalities, sewer and wastewater treatment capacity can struggle to cope with the volumes of brewery effluent. It was for this reason that Brau Brothers moved to Marshall Minnesota from its original home in Lucan in 2013.⁵

Equally, the high density of particulates in brewery wastewater can be too high and have improper pH for facilities to handle. As breweries are forced to pre-treat their water, or pay surcharges, both of which are expensive options.

Despite this, some breweries have invested heavily in treatment solutions and have woken up to the challenge of water and wastewater. In 2016, Bear Republic announced a partnership with Cambrian Innovations and the unveiling of a treatment system at

the brewery's site in Cloverdale. The system, it claimed, "will cut water treatment costs, generate clean water and energy for use on site, and significantly reduce the brewery's CO2 footprint."

This was in addition to pre-purchasing water credits, the \$4 million system uses electrically active microbes to purify wastewater, enabling the brewery to recycle up to 25 percent of the water it uses for equipment cleaning."⁶

A new type of business

The wholesale side of the beer industry has also been evolving as breweries are choosing to control more of the supply chain, for example, by taking over specialist wholesalers. This move has resulted increased capital intensity. The subsequent large investments into these fixed assets has ramped-up production and compelled sales to deliver a reasonable return on investment.

The emergence of new technologies, including sensors, data analytics and smart processing equipment is expected to help brewers predict the performance of their operations when faced with various challenging circumstances. This will enable manufacturers to make better decisions, reduce operational risk and assess cost effective ways for deploying these new technologies.

In this complex market, the current winners are the premium beer makers, where there are still attractive profit margins. For example, microbreweries are now competing successfully, when compared with the larger industry players now that cost reduction through increased production has become less important.⁷ Their success also illustrates consumer desire for diverse, specialist products.

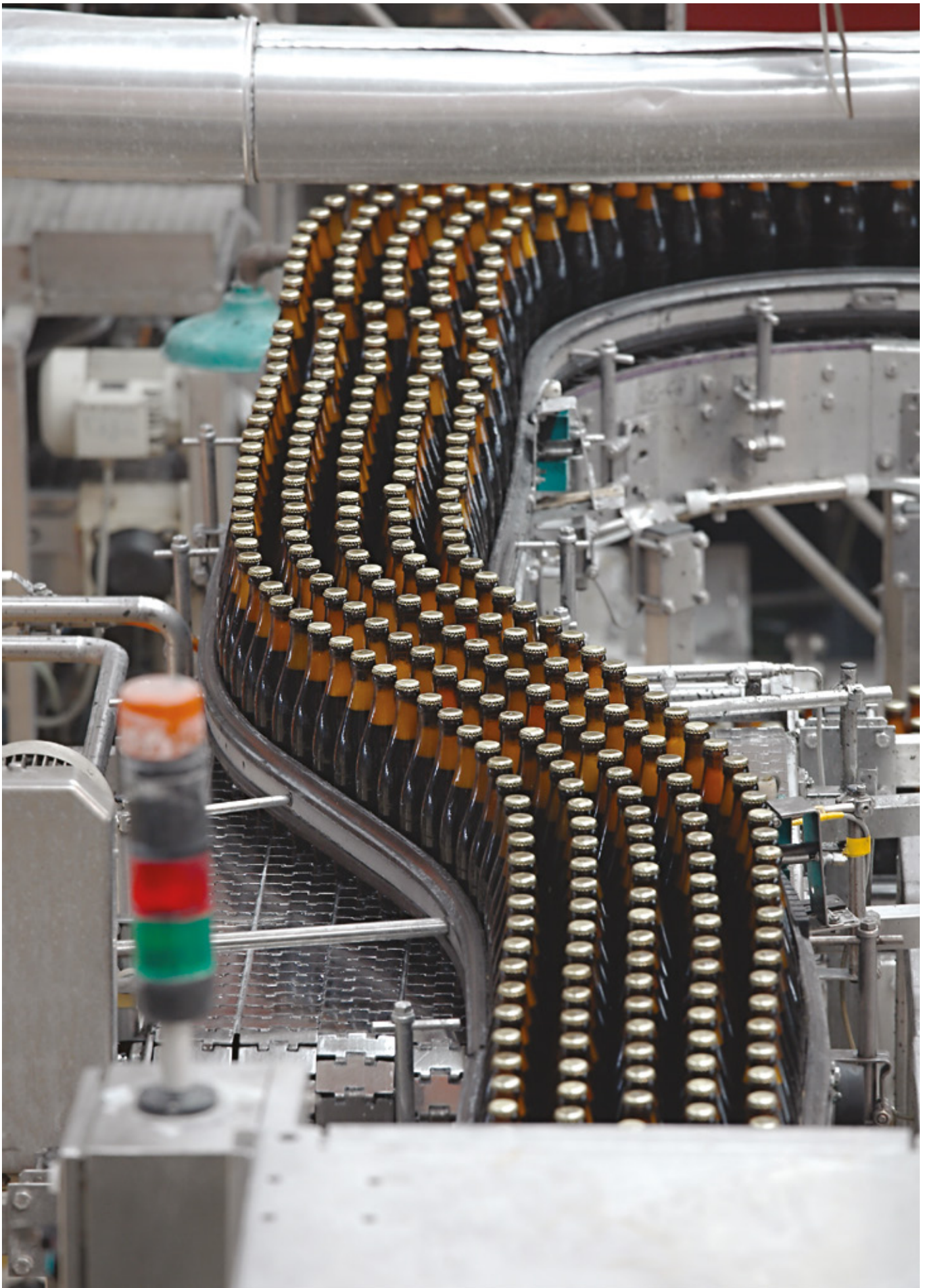
5. <http://braubeer.com/our-story/>

6. <http://braubeer.com/our-story/?age-verified=5ae3b3c2e6wastewater-reuse-system/>

7. *McKinsey Perfect Storm in Global Beer Business*

“Consumers are much more health conscious, environmentally aware and concerned about the quality of what they drink. To remain competitive, brewers need to be able to brew a wide range of beer styles while maintaining a high degree of process efficiency. The pressure to produce high-quality beers at the lowest cost increases every year”

ICBS International
Centre for
Brewing Science



CAN TECHNOLOGY BE YOUR COMPETITIVE EDGE?

As outlined in the previous section, breweries around the world are facing various operational, organisational and distribution challenges. To meet these challenges, companies are looking at new smart technologies and their integration into the production is now widespread across the industry. From Tier-1 companies such as AB InBev and Carlsberg, through to microbreweries and craft beer manufacturers such as Deschutes Brewery and Sugar Creek—Big Data, artificial intelligence (AI) and the Internet of Things (IoT) is helping companies to better understand their operations.⁸

Innovative technologies and proactive equipment maintenance continue to improve product quality and reduce overall equipment costs—through reduced wastage, greater efficiencies and cost savings. Together these features ensure better profitability and increased market share.⁹

Applying machine learning through Big Data can be used in various applications in the beer industry. For example, it is now possible to predict the percentage of beer fermented in each batch, and when it is time to move onto the next stage in production. By using AI to improve production forecasting, together with horizontal distribution channels, beer makers can ensure smooth distribution, leading to reduced wastage.¹⁰

8. AI and IoT Help Perfect the Brew at Sugar Creek Brewing Company by Joe Voelbacher 2019

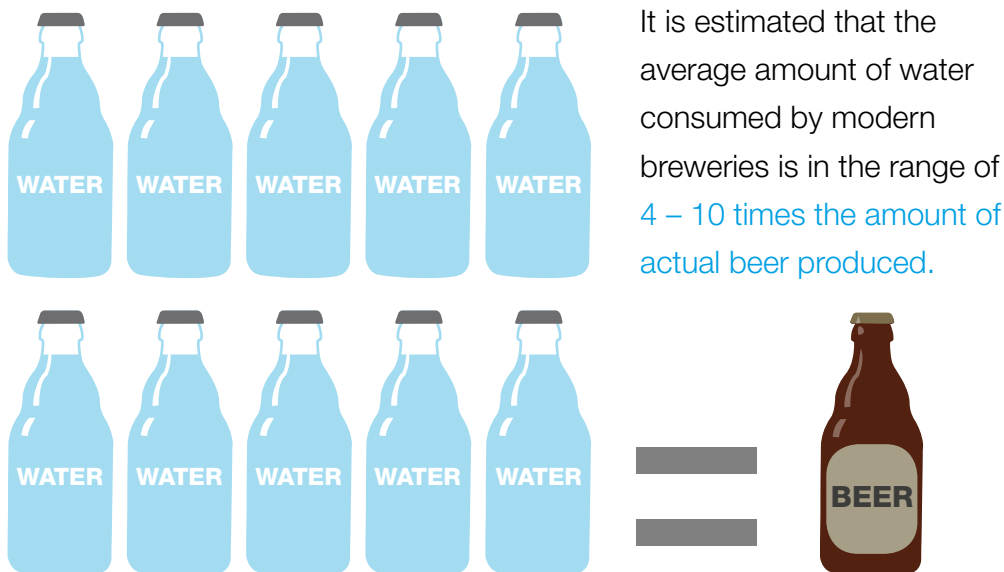
9. Tapping Into the IoT for Smarter Solutions in the Beer Industry by EAC 2017

10. Brewery uses AI and IoT Technology to Improve the Quality of Beer by Forbes 2019

TACKLING WATER SCARCITY

As water has become an increasingly scarce commodity due to many reasons including climate change, population growth and rising industrial consumption. Businesses are having to become accountable for the way their businesses operate and pressure is being placed on the brewing industry to think critically about their water consumption.

Beer production requires large volumes of water. Not only are beer products typically composed of 90 – 95% water by mass¹¹, but water is used in almost every step of a brewing process. Specific data is dependent on the characteristics of the product itself and the volume being manufactured. Nevertheless water is required for multiple steps from wort preparation through to fermentation, and ultimately the final stages of beer processing. Large amounts of water are also required for cleaning cycles, adding to other wastewater by-products. Both processing and the disposal of this wastewater are the most visible environmental issue brewer's face. Wastewater from breweries includes solid wastes such as spent grains, yeast, and spent hops that combined amount to a significant weight per barrel of beer produced. Modern regulatory demands by and large require water to be treated before it can reintroduced into the environment.



11. <https://growlermag.com/the-thirsty-business-of-beer-how-breweries-are-confronting-the-industrys-water-problem/>

The question of sustainability has therefore become a major focus for the industry as it faces mounting pressure to lower water consumption. Prior to the 1990s when smaller craft breweries began to proliferate, large brewing operations were using natural resources in an uncontrolled and ceaseless way. For example, in the late 1980s and early 1990s large international brewers Coors Brewing Company were charged with illegally dumping industrial solvents into Colorado waters. They were eventually accused of violating the federal Clean Air and Clean Water Acts 240 times between 1986 and 1991. In 1991 the company paid a \$700,000 fine for violating hazardous waste laws.¹²

Today, many companies have made a conscious effort to explore innovative ways to reduce and re-use water whilst maintaining product quality. Heineken, for example, are reported to treat 96.5% of its waste water worldwide. The company's CEO Jean-François van Boxmeer is known for being outspoken on the issue of water scarcity, noting at the 2018 Financial Times Water Summit that 'water is yet to have its Al Gore moment'.¹³ His comments suggesting that the issue is devoid of a public spokesperson with the power to wake up executive level managers. At Heineken, reducing water is not simply a challenge for manufacturing, but omnipresent in its activities.¹⁴ Saving water is ingrained in the daily consideration of their employees, with special focus on the environment and its impact on local communities. By assessing the environmental impact of their operations, and vice-versa, they are actively taking action to ensure their operations are sustainable.

12. <http://scholarship.law.wm.edu/cgi/viewcontent.cgi?article=1640&context=wmelpr>

13. <http://www.ethicalcorp.com/content/we-cant-wait-al-gore-ceos-have-lean-water-crisis>

14. <https://www.theheinekencompany.com/Sustainability/Focus-Areas/Protecting-Water-Resources>

OTHER FACTORS IN STAYING COMPETITIVE

In markets where growth is more static like the mature markets of Western Europe, the US and Australia, consumer trends are moving towards premium beer. Even in some newer, emerging markets such as Brazil, there is a swing in favour of craft beers.¹⁵

Changes in the market have brought new challenges for the established manufacturer—who recognise that the infrastructure they have is different to the infrastructure they need for these new market conditions.

This has led to the need for a step change in strategy for the larger beer brands who realise that if they are to compete effectively in this new market, they need to be nimble at producing new products with increased frequency to continue to grow. It remains to be seen if larger brewers can effectively fix smaller batch production costs and still have the flexibility to meet sudden increases in customer demand.

With a changeable market and smaller profit margin, breweries are taking a leaner approach to manufacturing and to the marketing of their products. These actions attempt to provide customers with the beers they want when and where they want them, whilst maintaining reasonable profitability.¹⁵



15. McKinsey Perfect Storm in Global Beer Business

CONCLUSION

As the industry consolidates through a series of mergers and acquisitions, it is possible all that will be left in the future will be a handful of huge corporate entities that have little, if any, connection with customers.

However, stronger central management can achieve greater efficacy, an increase in market share and still allow for local connection when carried out correctly. An example is Camden Town Brewery (CTB), who were acquired by AB InBev in 2015. News of the buyout of CTB, whose rapid rise at the start of the decade was met by disdain across the purist craft beer community—namely among another craft brewery, Brew Dog who publicly damned the move and removed all CTB products from their tap houses. Yet, the recent move by CTB to partner with the UK's Arsenal Football Club as their official beer partner is a good example of a craft beer company—owned by corporate entity—attempting to connect with local communities.

As Founder Jasper Cuppaidge explains, “Taking Camden to a local stadium, local football club and giving fans a better beer experience when enjoying world class football at Emirates Stadium.” Moreover, the company is using the opportunity to innovate, Cuppaidge added, “We’re trialling more outdoor entertainment, returnable plastic cups, fast-pour systems, loads of innovations.”¹⁶

On the operation, processing and equipment manufacturing perspective, an example is with the Krones Group, a German packaging and bottling machine manufacturer who acquired the business operations and assets of Shanghai Xiantong Equipment Installation in China with a view to expand its operations in Asia and increase local connection.¹⁷

Overall, it is clear that there is no one solution for the numerous challenges faced by today's beer industry. It is still too soon to understand the full impact on the big beer brands. As the number of players consolidates, they cut operational costs and simultaneously deliver a wider range of higher quality beers suitable for today's more refined palette, as they try to capitalise on the craft beer gold rush.

¹⁶. morningadvertiser.co.uk 2019

¹⁷. packaging-gateway.com 2018

For further information about our brewing production capability please contact Steffen Knoedler

e: steffen.knoedler@wmftg.com

t: +49 7062 9560 29

m: +49 175 2273 637