

Introduction

Welcome to Pharmaprojects' 2018 review of trends in pharmaceutical R&D. For over a quarter of a century now, I've been taking an annual look at the evolution of pharma R&D, and in this report, I'll look at how things are sounding for the industry at the start of 2018. We'll assess the industry trends by examining the pipeline by company, therapeutic area, disease, target and drug type, using data from Informa Pharma Intelligence's Pharmaprojects, part of the Citeline suite of products, which has been tracking global drug development since 1980. This report will be followed up by our annual supplement reviewing the New Active Substance launches for the year just gone. But here, we will be focusing on research and development as it is now, how it is changing, fluctuating and being fine-tuned, and where it has been headed during 2017.

As a lifelong music lover and sometime DJ, I've chosen a musical theme for this year's review. Drug development itself can be likened to a symphony, album, mixtape or DJ mix: it's not enough to just have all the individual parts in place; for a really harmonious journey, each element needs to flow into the next in a way which is coordinated, balanced and mellifluous. The instruments need to be in tune and the constituent parts must be moving at sympathetic rhythms. This report will look at the hits and misses currently flooding the pharma airwaves. Is the industry's top tune *The Edge of Glory*, or is it more a case of *I Will Survive*, or even worse, *The End*?

Music, like pharma R&D, always evolves over time. I often wonder what the 14-year-old me, surrounded by disco, punk, new wave and Abba in 1978, would have made of the music I listen to now in 2018. Would it have sounded strange and futuristic, or would I have been surprised by how little the fundamentals had changed? And what I wouldn't give to hop into a time machine and sample the sounds of a further 40 years hence! Just like the pop world, the pharma industry is in a constant state of flux, evolution, and progress, but I suspect in many ways, similarly, the fundamentals haven't really changed as much as we might imagine. The song remains the same.

However, there's no doubting that science and technology continue to march to the beat of

progress, and over 40 years, techniques for compound identification, patient screening, and drug delivery have changed beyond recognition. In the music world too, techniques for delivery have rapidly changed; in my lifetime alone, vinyl gave way first to cassette tape, then to CDs, which have themselves been replaced first by digital downloading that is now giving way to streaming. But still in pharma, some classical techniques, like vinyl records, stubbornly refuse to die.

One of the most common criticisms of the current pop charts is how homogenous they have become. There is an argument that streaming, with the ease it provides of skipping to the next track after just a few seconds' listening, is leading popular artists to avoid anything which sounds jarring or stands out too much from the crowd. This is leading to a narrowing of the musical palette. Some parts of pharma stand accused of succumbing to a similar artistic conservatism, as companies abandon high-risk areas and focus on where they feel more comfortable – witness Pfizer's recent decision to exit the notoriously failure-prone neuroscience arena. The big stars are increasingly moving MOR (middle-of-the-road), leaving the experimentalism more to outsiders and emerging talents.

All this is taking place to a background of political discord more atonal than an orchestra playing a Schönberg piece in a wind tunnel. The freestyle jazz-like tweets squeaking out from President Trump's Twitter account have led many to want to stick their fingers in their ears, while his emissions on pharma have sent mixed messages to say the least – the populist impulse to bash the industry often tonally clashing with his business-focused actions, like reducing the corporate income tax rate. Meanwhile, in the UK, everything appears to have been drowned out by the cacophony that is Brexit. Elsewhere in Europe, there are further Wagnerian rumblings as far-right parties continue to make advances in national elections, a trend likely to continue in Italy and Hungary this year. In Europe, where once it seemed all were in harmony, there have been "musical differences" which now threaten to split the band. Against this inharmonious soundtrack, can pharma continue to expand its soundscape and score some genuine global number one megahits?