THE **NOVASECTA EUROPEAN MIDPHARMA** REPORT **2023**

Novasecta

Europe is home to 93 'MidPharmas': companies with €100m-€10bn annual revenue that develop and commercialise pharmaceutical products. In our eighth annual European MidPharma report, we examine this important sector of the pharmaceutical industry and contrast it with European-headquartered Big Pharma. We then describe the ingredients for MidPharmas' continued success.

EXECUTIVE SUMMARY

78% of Europe's MidPharmas are either fully private or privately controlled with a >50% private shareholding, enabling them to take a long-term perspective. They are increasingly choosing focused business models depending on whether the core ownership preference and capability of the company relates to New Therapeutic Entity (NTE) R&D, value-added medicines, or pure commercialisation.

The most successful MidPharmas relentlessly reinforce a strategic focus, increase R&D productivity, and maintain profitable commercialisation:

- **Reinforce a Strategic Focus**
  - Stick to and constantly communicate the strategic focus internally and externally
  - Divest or spin out non-core business segments
  - Selectively acquire, partner, and in-license for core business segments
- **Increase R&D Productivity**
  - Build world-class R&D capabilities in one or two therapeutic areas
  - Treat R&D as an investment that must create value and will vary as a % of sales year on year
  - Embed an asset-oriented R&D operating model with seamless internal and external innovation
- **Maintain Profitable Commercialisation**
  - Insist on cross-functional working between relevant commercial and R&D functions
  - Seize opportunities to acquire or in-license profitable marketed products when available
  - Focus on marketed product profitability to reduce unnecessary SG&A and R&D expenditure

The MidPharmas that have sustained these habits are thriving. This year's report explores how such companies are delivering growth and impressive returns for their often-private shareholders. It also describes how they are addressing continued challenges, particularly related to balancing the need for R&D investment with sustaining healthy profitability.

Novasecta analysed public domain data for European-headquartered companies with €100m-€10bn annual revenue that develop and commercialise pharmaceutical products. This definition excludes service companies, distributors, and US companies that domicile in Ireland or the UK. It also excludes biotechs that do not have a commercial footprint but happen to have license revenue exceeding €100m in a single year, such as Basilea and UniQure. Companies are also excluded from relevant sample sets where there are insufficient public domain data available. We also examined European-headquartered Big Pharma (annual revenue >€10bn) and refer to these companies throughout as 'Big Pharma'. We analysed data for the years 2017-2022 (calendar years or nearest published business year) sourced from GlobalData, company websites, and other public domain sources. Data analysed includes annual revenue, R&D spend, profits (using operating income as a proxy for Earnings Before Interest and Tax), number of employees, market capitalisation and number of Mergers & Acquisitions and Strategic Alliances deals. All data reported in local currencies has been converted to Euros at the average exchange rate for the calendar year analysed. For R&D investment as a percentage of revenue, of the 93 MidPharmas identified, 48 have sufficient recent public domain data on both revenue and R&D spend. Other companies are included in the remainder of the report where some data (such as revenue trends) are available. For R&D investment as a percentage of revenue, data from 2021 or 2020 was used where data from 2022 was not published. For EBIT as a percentage of revenue, data from 2021 or 2020 was used where data from 2022 was not published. For R&D intensity trend, companies where R&D intensity (R&D investment divided by revenue) for all 5 years (2018-2022) was not available were excluded. For EBIT trend, companies where EBIT margin (EBIT divided by revenue) for all 5 years (2018-2022) was not available were excluded. Compound Annual Growth Rates (CAGRs) are based on 2018-2022 data, or 2017-2021 where 2022 data are unavailable (four-year R&D spend CAGRs are used for Servier and Ferrer, and four-year revenue CAGRs are used for Kern, Neuraxpharm, Pharmathen, and Theramex). For sales multiple (market capitalisation divided by revenue), 2023 market capitalisation and 2022 annual revenue was used. Merck Healthcare and Fresenius Kabi are not displayed in our sales multiple graphic as market capitalisations are available at the group level only. Deal analyses examine data on Mergers & Acquisitions and Strategic Alliances involving assets that are either still in development (Pipeline), or on-market (Marketed), collected from the GlobalData deal database for years 2018-2022. Deals analyses include both deals where the MidPharma role in the deal is 'Issuer' and 'Licensor'. For number of employees per €100m annual revenue, data from 2021 or 2020 was used where data from 2022 was not published. For the performance ranking, 51 ranked companies were assigned to 5 equal groups with integer scores from 0 to 4 representing the number of quadrants of the Harvey balls. Total rank is based on the sum of all three sub-rankings (Revenue CAGR, Absolute Revenue and EBIT margin), and the lowest sum is the highest total rank. Companies that have changed ownership structure in 2022 are shown with the ownership at 2022 year-end to correspond with the performance for 2022.

AN INTRODUCTION TO EUROPEAN MIDPHARMAS

MidPharmas are increasingly adopting more focused business models than they used to, so this year we have categorised the 93 companies by business model:

1 – **R&D-based (51):** Invest a significant proportion of revenue in creating New Therapeutic Entities (NTEs)
2 – **Value-added Medicine (18):** Use drug delivery and formulation to create and improve marketed products
3 – **Commercial (24):** Acquire, grow, and increase the profitability of marketed products

R&D-based MidPharmas focus on NTE creation

R&D-based MidPharmas invest a significant proportion of revenue on R&D every year, with the more biotech-like committing over 100% of revenue to R&D in 2022 (107% for MorphoSys, 102% for Galapagos), and the more established companies such as Lundbeck, Chiesi, UCB, and Merck investing 20-30%. This is driven by the commercial upside of great products coupled with the high failure rates, long development timelines, and significant resource requirements for innovative R&D.

Accepting additional risk and committing a large proportion of revenue to R&D can pay dividends, as one truly innovative drug approval has the potential to transform the fortunes of a MidPharma. However, investing a large proportion of revenue in R&D does not guarantee revenue growth.

Even though innovative R&D can be capital hungry, 61% the 51 R&D-based MidPharmas are fully privately owned and a further 12% have a dominant (>50%) private shareholding as well as a public listing. This suggests that private ownership is not an obstacle to investing significantly in R&D.

Commercial and Value-added Medicine MidPharmas focus on profitability

Commercial MidPharmas commit a smaller proportion of revenue to R&D (as low as 1% for those that disclose) because the cost of conducting R&D, for example bioequivalence or indication expansion studies, is significantly lower than the cost to conduct clinical trials for NTEs.

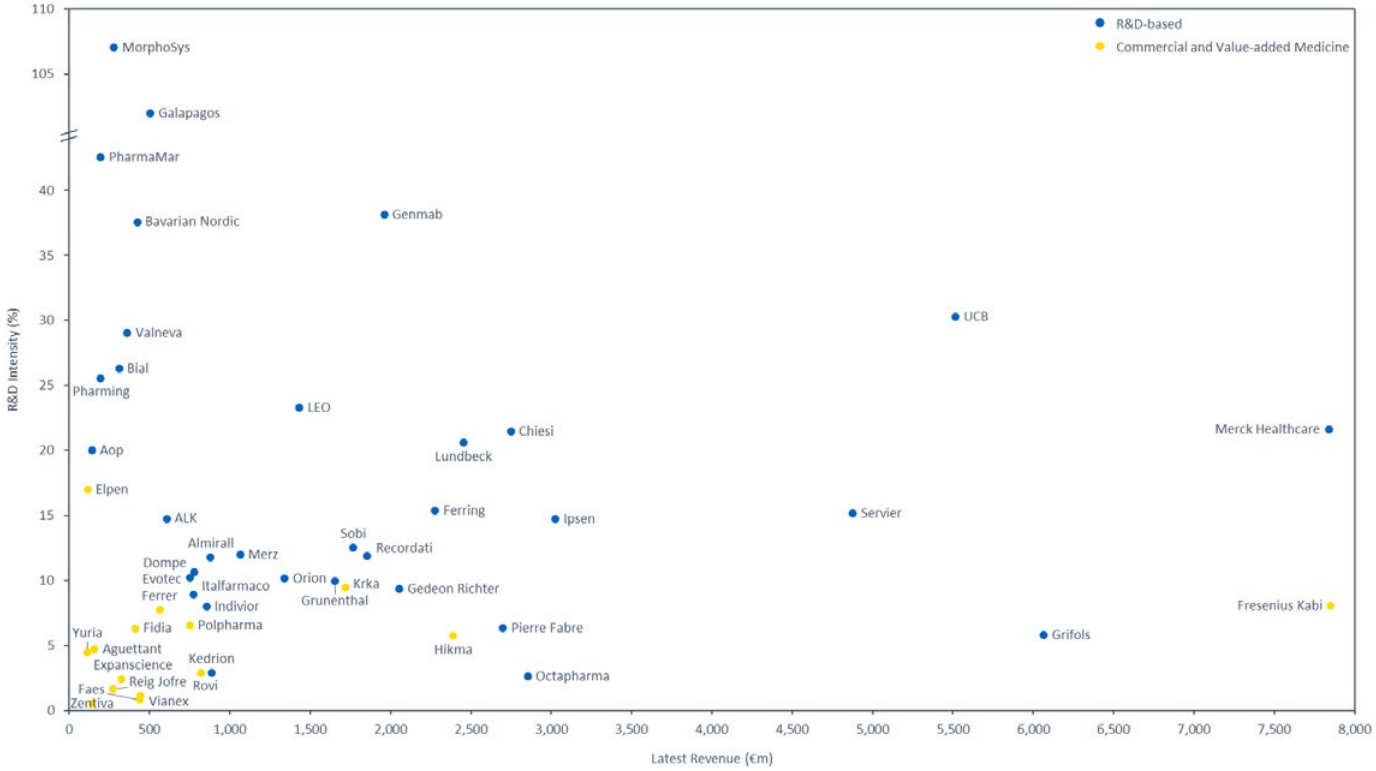
Value-added Medicine (VAM) and Commercial business models represent a lower-risk approach to generating revenue. The 2022 revenues of these MidPharmas ranged from just over €100m to nearly €2.5bn, except for Fresenius Kabi (€8bn). Just three of these MidPharmas generated revenue over €1bn. Owners prefer the consistency of established, broad portfolios, rather than the risk of innovative R&D.

72% of the 18 VAM MidPharmas are fully private, while 83% the 24 commercial MidPharmas are fully private.

R&D intensity indicates MidPharmas' appetite for scientific risk

Private ownership (by families, foundations or Private Equity funds) often means less disclosure of public domain data than listed companies are obliged to, particularly in R&D spend and profitability. For those companies that do disclose, the distinction between business models is illustrated most sharply by the proportion of revenue that each invests in R&D every year:

Revenues and R&D intensity of MidPharmas



SECTION 1

REINFORCE A STRATEGIC FOCUS

A clear strategic focus enables MidPharmas to sustain a differentiated and world-class expertise in a chosen niche and thereby develop and create access to high-quality drugs that address patient needs. Some MidPharmas have successfully evolved to become focused businesses, while many still spread resources across diverse business segments.

1

REINFORCE A STRATEGIC FOCUS

MidPharmas create strategic focus by strengthening and building segments in which they can compete profitably while divesting those that do not fit the focus. This is a matter of both profitability and mindset. For example the mindset required to succeed as a commercial player like Hikma is very different to that required to succeed as an R&D-based player of a similar revenue scale like Lundbeck.

FOCUS ENHANCES PERFORMANCE

MidPharmas lack the scale of Big Pharma and often (because of the ownership structure) lack access to capital markets that can provide investment for growth. However their focus drives such companies to direct resources efficiently, ensuring key activities are executed with excellence. A world-class reputation in a particular field attracts top talent and partners, creating positive feedback that reinforces excellence. A focused business is efficient to manage and has a convincing vision that gains buy-in from employees, investors, and partners. Conversely a more diversified approach can spread resources too thinly, driving sub-scale efforts and average performance in multiple business segments.

As we show in this year's European MidPharma performance ranking that concludes this report, there is a clear upside in embracing focus. The five best-performing MidPharmas in our ranking this year all have a clear strategic focus: on 1-2 specialty therapeutic areas (Sobi in rare diseases, Chiesi in respiratory and rare diseases), or on a technology platform (Genmab in antibodies, Octapharma in plasma-derived medicines), or on value-added medicines (Rovi in long-release injectables).

PRIVATE OWNERSHIP MAKES FOCUS ESSENTIAL

With the exception of Boehringer Ingelheim, Big Pharma companies have a public listing, typically in USA, Europe, or both. This allows them to access the capital they need to invest in NTE R&D internally and externally. For MidPharmas the contrast is stark. The privately-owned companies that cannot use stock or large cash balances to acquire the highest value biotechs or invest in multiple concurrent Phase III programs must chart a more focused path to success.

83% of Commercial MidPharmas are fully privately owned, suggesting that this model suits the lower risk and highly focused nature of such businesses. By contrast, 61% of R&D-based MidPharmas are fully privately owned, and such companies focus on selected TAs or technologies.

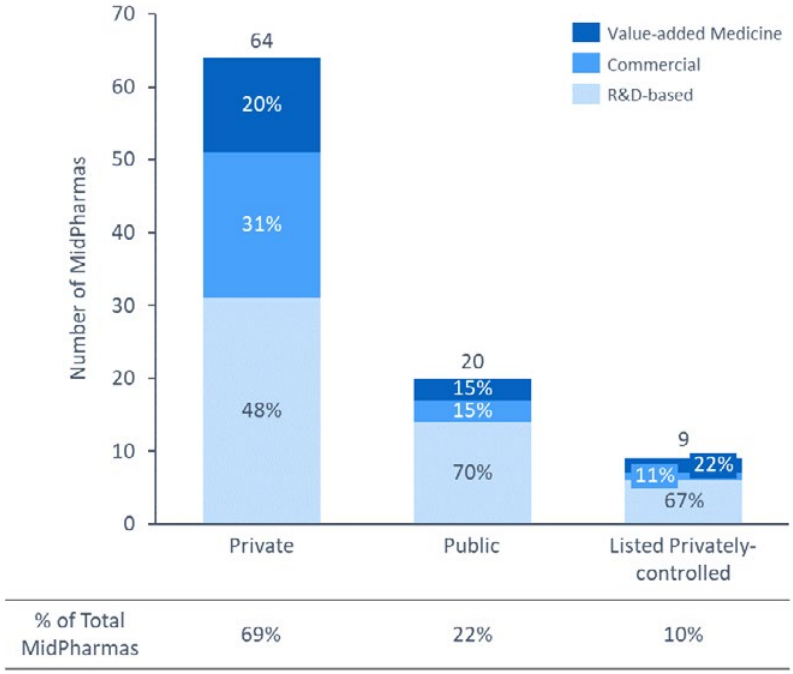
For the private R&D-based MidPharmas that have the courage and ambition to invest in NTE R&D, there is a choice: part-list while keeping private control (>50%) like Merck, Lundbeck, Ipsen, Grifols, Recordati, and Almirall, or fund internal and external innovation from the profits generated from successful high-margin innovative products, or both. Either way, MidPharmas must strategically focus and make excellent strategic choices.

OWNERSHIP INFLUENCES BUSINESS MODEL FOCUS

The MidPharmas that have listed on a public market are more likely to focus on NTE creation than those that have chosen not to. Capital markets have plenty of investors that seek the upside value of innovative R&D and are prepared to accept the risks involved. Listed MidPharmas also more often have a sharper strategic focus than those with a dominant foundation or family shareholder. This is partly because financial analysts and activist investors are less tolerant of the inefficiencies that can result from diversified or unfocused business models.

Privately-owned MidPharmas are more likely than listed MidPharmas to have VAM or Commercial business models. The relatively recent advent of Private Equity (PE) funds investing in pharmaceutical companies has enhanced this phenomenon. Such investments typically involve a business model with more stable earnings and a promise of revenue growth by acquiring products that fit a highly efficient commercial machine. Companies like Acino, Advanz, Neuraxpharm, Nordic Pharma Group, Pharmanovia, Theramex, and Zentiva have been acquired by PE funds with significant ambitions for profitable growth without the somewhat binary risk of NTE-based R&D.

Business models of MidPharmas by ownership type



Note: *Percentages may not total 100% due to rounding*

By contrast with the PE-funded MidPharmas, MidPharmas that are privately held or controlled by a foundation or family often maintain diversified business models, sometimes preferring to hedge their R&D risk by retaining legacy established products and/or generics business, as exhibited by Servier, Ferring, and LEO Pharma.

1

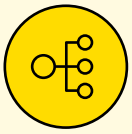
REINFORCE A STRATEGIC FOCUS

HOW MIDPHARMAS REINFORCE FOCUS

Creating a focused business requires discipline, motivation to make difficult decisions, and belief that focus is beneficial for the business. Successful MidPharmas take the following actions to create strategic focus:

Stick to and communicate the strategic focus internally and externally

- Achieve buy-in from existing and prospective talent, investors, and quality partners
- Enhance a universal mindset and culture that transcends cross-functional siloes



Divest or spin out non-core business segments

- Increase profitability and flexibility, remove distractions, and avoid spreading resources too thinly

Selectively acquire, partner, and in-license for core business segments

- Enhance internal capabilities and expertise, and build focused pipelines and portfolios

SECTION 2

INCREASE R&D PRODUCTIVITY

R&D productivity is arguably the entire pharmaceutical industry's greatest challenge. It is both difficult to measure and essential to success. For R&D-based companies the result of productive R&D is a healthy pipeline of valuable products that can be developed in-house or partnered depending on corporate strategy. For VAM and Commercial companies productive R&D ensures portfolios of marketed products are managed effectively to maximise their value.

2

INCREASE R&D PRODUCTIVITY

Productive R&D future-proofs the revenue growth and profitability of MidPharmas. R&D productivity can be increased by flexibly investing in core areas, selectively adding and removing assets to streamline the pipeline or portfolio, and creating an asset-centric R&D operating model in which the processes, governance, capabilities and culture ensure high-quality and rapid decision-making.

THE R&D PRODUCTIVITY CHALLENGE

In 2022 the US Food and Drug Administration (FDA) approved 37 New Therapeutic Entities (NTEs) comprising 22 New Molecular Entities (NMEs) and 15 New Biological Entities (NBEs). This is significantly lower than the last five years, following an all-time high in 2018 (42 NMEs, 17 NBEs). Costs from failed and successful projects have increased, while the number of and return from successful projects has declined. There is no universally accepted metric for R&D productivity: all published metrics have significant caveats attached to the assumptions used. The basic equation for R&D productivity being value created (risk-weighted) divided by resources applied (cost and people) is easy to state – the hard part comes in challenging the assumptions and getting to the underlying roots of value creation over time.

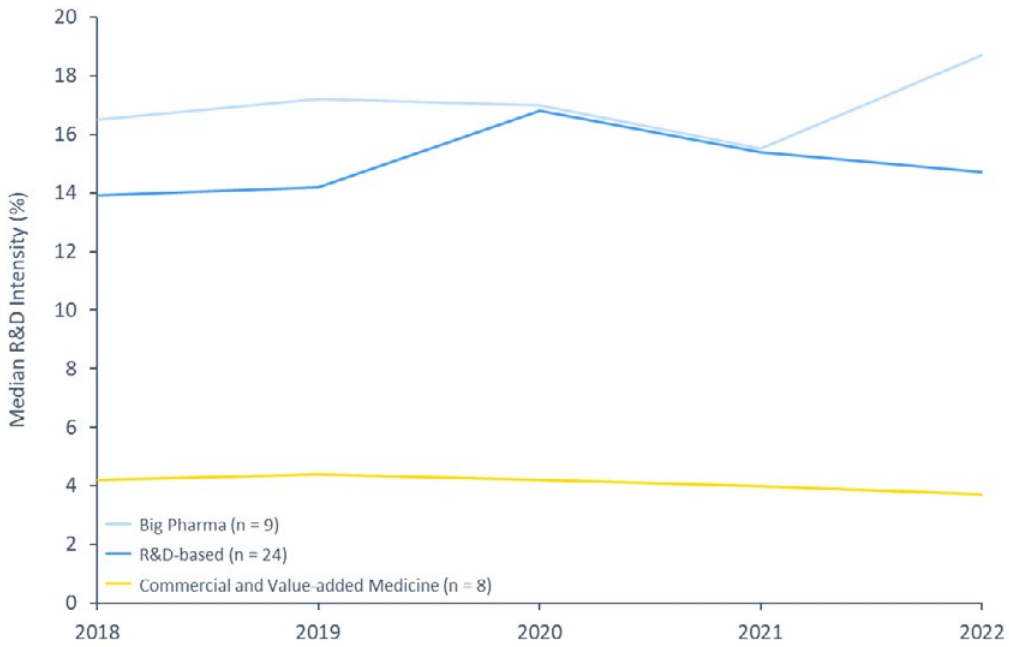
PRODUCTIVE R&D FUTURE-PROOFS PHARMA

Productive R&D is efficient R&D. Underperforming projects are stopped early before they incur significant costs in late-stage development and then fail or generate a poor return. Promising projects are advanced quickly with clear rationale, and allocated resources appropriate for their estimated value. Clinical trials run efficiently with the right patient populations. Productive R&D results in full, balanced pipelines and portfolios of valuable products with the potential to be highly valuable for patients and generate large returns.

MIDPHARMAS CAN MATCH BIG PHARMA IN R&D INTENSITY

R&D-based MidPharmas generally commit a lower proportion of their annual revenue to R&D than Big Pharma. From 2018-2022 R&D intensity (R&D as a % of revenue) ranged from 14-16% for R&D-based MidPharmas and from 16-19% for Big Pharma. However, R&D-based MidPharmas have shown they can match Big Pharma's R&D intensity, as median R&D spend as a percentage of revenue was equal in 2020 (17%) and 2021 (15%).

Median R&D intensity for MidPharmas vs. Big Pharma trend over 5 years



Some MidPharmas have a higher R&D intensity than Big Pharma. UCB has committed 25-30% of revenue to R&D for the last 5 years. Biotech-rooted Genmab, Galapagos, and Morphosys committed a higher proportion, albeit on lower revenue bases than their pharma-rooted peers. Although R&D intensity in any year conforms to a measure of input (R&D spend) divided by output (revenue), it is a poor measure of R&D productivity. Today's R&D spend creates value for future years, and value comprises much more than revenue. So, committing a significant proportion of revenue to R&D is no guarantee of future revenue and profit. R&D investment must be considered on a project-by-project basis and focused on core areas. This approach will result in an R&D intensity that increases as the pipeline and portfolio evolves, for example as projects advance to the more expensive, later stages of development. Correspondingly, R&D intensity can reduce as late-stage trials are completed.

Committing a similar proportion of revenue to R&D year-on-year suggests that R&D-based MidPharmas are increasing R&D spend in line with revenue growth. As revenue grows, R&D spend is increased proportionally. Yet this is a signal also that many companies treat R&D as a cost line that directly affects EBIT – every percentage point spent on R&D diminishes EBIT by a percentage point in any given year. Balancing this fact with the need to invest in R&D for a future return (as a healthy pre-revenue biotech would) is a central challenge for R&D-based MidPharmas.

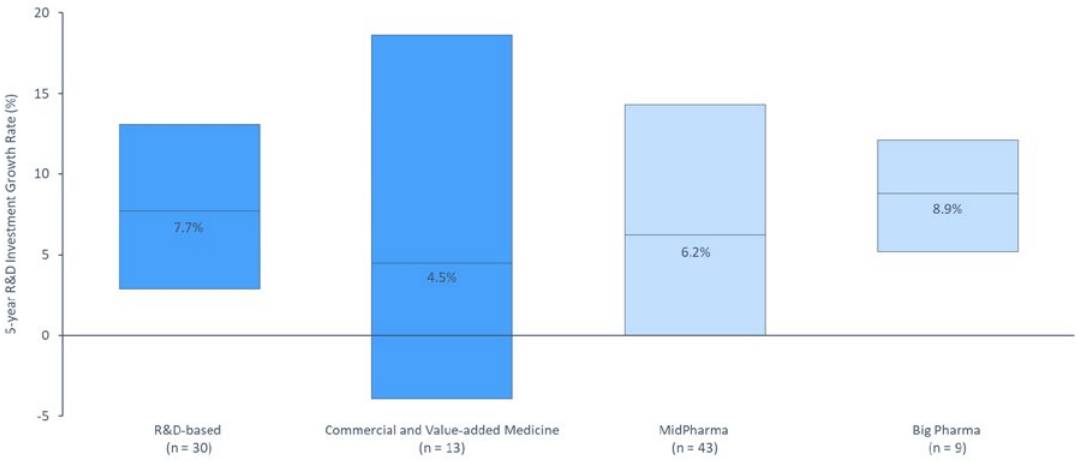
VAM and Commercial MidPharmas maintained R&D intensity at a median of 4% from 2018 to 2022. This is significantly lower than the medians of R&D-based MidPharmas (14-16%). Some Commercial and VAM MidPharmas maintain R&D intensities as low as 1% (Vianex, Faes, and Zentiva). They are also very stable, and the lack of variation over time suggests R&D requirements (and therefore the effect on EBIT) are more consistent and predictable. Commercial companies can manage R&D as an operations function, ensuring products maintain marketing authorisation with relatively stable resource commitments.

MIDPHARMAS ARE INCREASING THEIR COMMITMENT TO R&D

INCREASE R&D PRODUCTIVITY

Big Pharma has been doubling down on innovative R&D by increasing R&D investment year on year and divesting lower margin business segments such as generics, consumer health, and CDMOs: the median 5-year R&D spend CAGR for Big Pharma was 8.9%. The median 5-year R&D spend CAGR was a similar 7.7% for R&D-based MidPharmas, suggesting they too are increasing their commitments to innovative R&D.

5-year R&D investment growth for MidPharmas vs Big Pharma



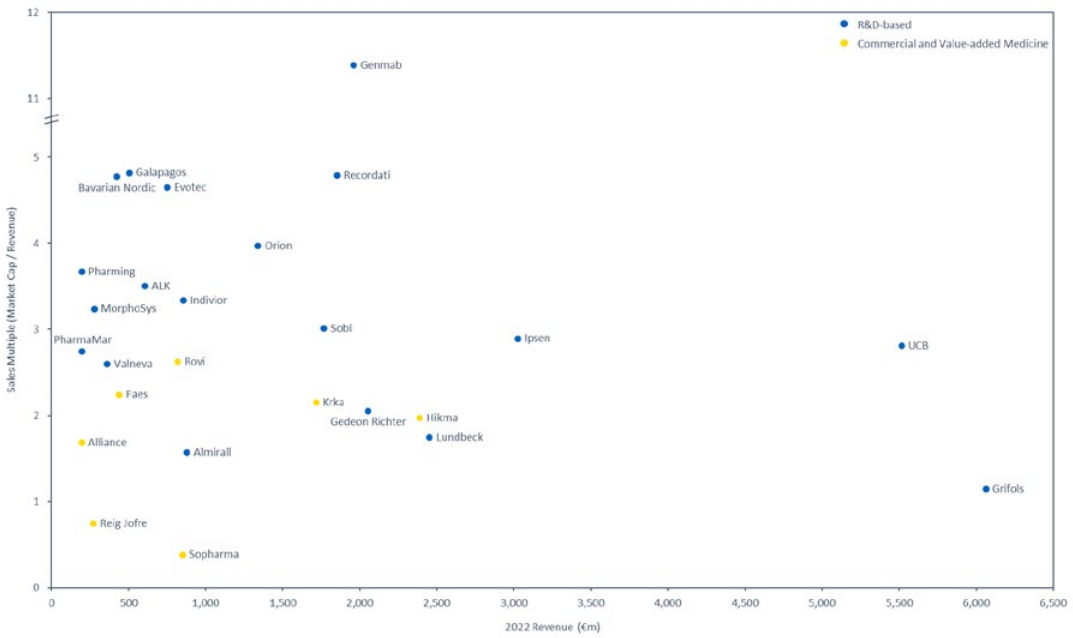
As a Big Pharma in 2022 with revenue of €17bn, BioNTech is a notable new entrant with a 5-year R&D spend CAGR of 61%. This was enabled by unprecedented revenue from its blockbuster COVID-19 vaccine. In this case, a single product was enough to catapult the company from MidPharma to Big Pharma. AstraZeneca had the second highest R&D spend CAGR of the Big Pharma group with 16% (€4.5bn in 2018 to €9.3bn in 2022). At 17% MidPharma Evotec had the highest R&D spend CAGR of all MidPharma and Big Pharma companies except for BioNTech, more than doubling its R&D spend from €36m in 2018 to €77m in 2022. Although historically Evotec provided drug discovery solutions as services to other pharmaceutical companies, increasingly it is leveraging its years of drug discovery expertise to create partnered proprietary molecules.

Commercial and VAM MidPharmas are more diverse in R&D spend growth because they are more variable in their commitment to R&D and the R&D activities they conduct. Some are actively increasing R&D spend to enter and commit to the value-added medicines space. Elpen produces generics and value-add medicines and has a R&D spend CAGR of 24% (€10m R&D spend in 2018 to €20m in 2021). Others are actively reducing R&D spend or maintaining a low R&D intensity to lean more toward a pure commercial play and maximise profit margins by reducing costs, including R&D costs. For example Expanscience is a pure commercial player that maintains a low R&D intensity of 2.4% in 2022.

INVESTORS VALUE R&D-BASED MIDPHARMAS' INNOVATION

R&D-based MidPharmas are more likely to have higher market capitalisations and sales multiples than Commercial and VAM MidPharmas. The market values and rewards their innovation because innovative products can command higher gross margins and have the potential to generate more revenue and profit than more established and off-patent medicines.

Sales multiples of MidPharmas



Genmab is a notable outlier to the other MidPharmas that have a market listing, with a market capitalisation to sales multiple of 11x. The market clearly values Genmab's strategy of leveraging its proven technology platform to create best-in-class 'Knock Your Socks Off' (KYSO) antibodies. Genmab is also now forward integrating into commercialisation, while in the past it partnered with Big Pharma to maximise value of its assets. All other MidPharmas in the group have sales multiples of up to 5x. Four R&D-based MidPharmas have markets caps that are 5x revenue (Galapagos, Recordati, Bavarian Nordic, Evotec). The highest multiple achieved for Commercial and VAM players is under 3x (Rovi) and the others are all 2x or less.

The multiples of Commercial and VAM MidPharmas are limited by their business models, with a combination of less "hope" in R&D assets for analysts to value and the lower gross margins that their less innovative products can command compared with R&D-based MidPharmas. Though price and margin erosion over time can be mitigated (in particular by VAM players) by improving the medicines, making them easier for patients to take, and increasing the likelihood that patients and payers will choose to pay a slight premium for the medicine.

The lesson for MidPharmas of all types is clear: innovative R&D is required to achieve higher valuations and sales multiples. This is a unique characteristic of the pharmaceutical industry owing to limited patent-protected product lives before generic erosion. Adding new products is an ongoing imperative for survival and growth. The many MidPharmas that are seeking to acquire on-market products to drive top-line growth will get short-medium term EBIT, but risk over-paying in a highly competitive market. Also, the cash to acquire must come from somewhere, which has usually been past profits from successful innovative products or Private Equity funds investing in buy and build with financial discipline.

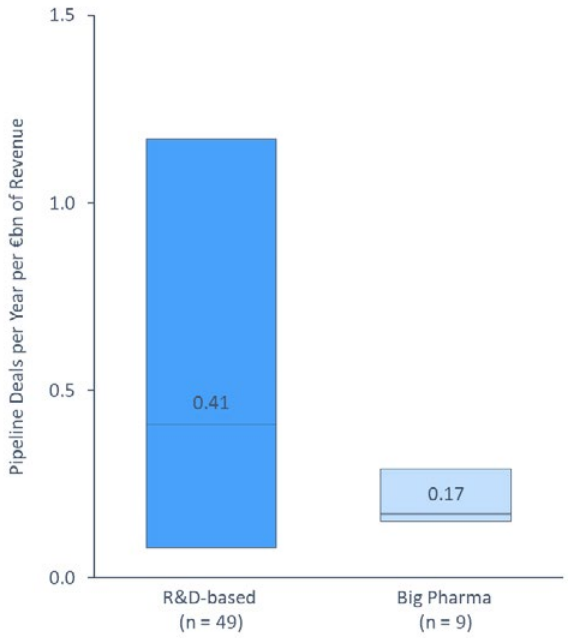
R&D-BASED MIDPHARMAS AGGRESSIVELY PARTNER TO ENRICH AND DE-RISK THEIR PIPELINES

For their scale, R&D-based MidPharmas have executed more partnering deals (M&A or strategic alliances) for pipeline assets over the last five years than Big Pharma. Median pipeline deals executed per year per €1bn annual revenue by R&D-based MidPharmas was over double that of Big Pharma (0.41 versus 0.17). This illustrates that R&D-based

MidPharmas are making a concerted effort to fill strategic gaps in their pipelines by in-licensing assets in development. It also illustrates an openness to out-licensing assets that they believe are better commercialised by another partner, as Genmab chose to do in partnering its lead product, Darzalex, with J&J to the great benefit of patients and both pharma companies.

By contrast Commercial and VAM MidPharmas disclosed no deals for pipeline assets between 2018 and 2022, as the business model excludes innovative R&D.

Pipeline deals per year per €bn of revenue



Further examples of MidPharmas acquiring or in-licensing assets include Sobi, that acquired CTI BioPharma in 2023 to strengthen its rare haematology franchise, and Ipsen, that has committed fully to an external innovation model by exiting in-house discovery and in-licensing multiple assets to build its pipeline.

Big Pharma has the financial and human resources to conduct discovery, early clinical trials and multiple late-stage clinical trials simultaneously over long periods. Such companies generally prefer to bring in either early-stage technologies or late-stage de-risked assets, so rely on external innovation to fill pipeline gaps less than MidPharmas. MidPharmas typically find it tough to afford the premium prices that Big Pharma spends to acquire highly innovative late-stage assets, so making deals for earlier-stage pipeline assets makes more sense, reducing risk by sharing it with a partner.

THE PRODUCT-ORIENTED R&D OPERATING MODEL

Successful MidPharmas are evolving and transforming their R&D operating models to achieve the R&D productivity gains they wish for and integrate the external assets they are acquiring or in-licensing. The traditional and somewhat siloed approach of strong functions dominating R&D is now being replaced by a more product-centric approach that enables high-quality cross-functional product and portfolio decisions to be made rapidly.

Making the product-function matrix work is a cultural and organisational challenge that many MidPharmas are grappling with, having built deep functional expertise over many years that contrasts with smaller pre-revenue biotechs that have fewer team members to involve and fewer products in the portfolio to focus on. MidPharmas often yearn to

operate R&D with the speed, courage and flexibility of their product-focused biotech competitors, yet find that their cultural habits resemble Big Pharma in complexity and layers of decision-making committees.

The answer lies in the therapeutic focus that most MidPharmas have in R&D. With only 1-2 therapeutic areas to consider and many fewer assets in the portfolio than Big Pharma, decision-making can be more asset and portfolio-centric. With this model, decisions can be made on the basis of value created vs. investment proposed rather than as part of a more complex system of fixed functional resource and cost budgets. Pre-revenue biotechs live and breathe the product-centric model as they only receive investment if their development plans demonstrate that value can be created. If only that were the case for many MidPharmas that struggle with slow-moving and under-funded assets.

HOW MIDPHARMAS INCREASE R&D PRODUCTIVITY

Productive R&D is efficient, product-centric and relentlessly decisive. For R&D-based MidPharmas this means a commitment to quality over quantity when evolving a pipeline of innovative assets, and an openness to external and internal innovation. For Commercial and VAM MidPharmas, productive R&D can be guided by the goal of R&D for each company, whether that be keeping costs low and taking a minimalist approach or committing more to improving existing products to increase margins. Successful MidPharmas take the following actions to increase R&D productivity:

Build world-class R&D capabilities in one or two therapeutic areas

- Concentrate resources on core capabilities and build expertise in niches

Treat R&D as an investment that must create value and will vary as a % of sales year on year

- Ensure resources are allocated efficiently, in-license and out-license to drive value creation

Embed a product-oriented R&D operating model with seamless internal and external innovation

- Fill strategic gaps in the pipeline/portfolio, secure future growth, and share risk and resources

SECTION 3

MAINTAIN PROFITABLE COMMERCIALISATION

MidPharmas must commercialise their new and existing products profitability. It is profit that is required to reinvest internally and secure additional external products. Sustained profitability also indicates that a business is healthy and well-managed, attracting talent and creating a virtuous cycle of success.

3

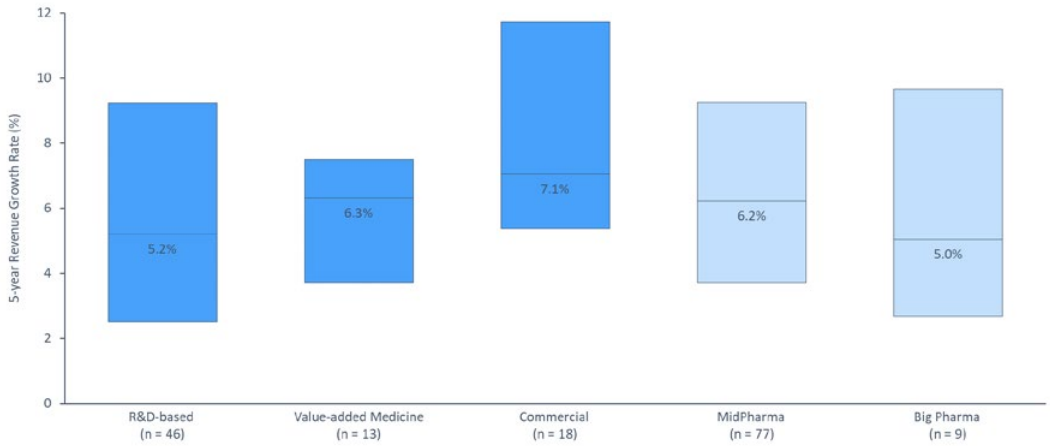
MAINTAIN PROFITABLE COMMERCIALISATION

Although MidPharmas have grown top-line revenue at a faster rate than Big Pharma over the last five years, their net profitability (EBIT %) is generally much lower. Furthermore MidPharmas' profitability has declined from 2020 while Big Pharmas' profitability has remained stable. MidPharmas can increase commercial profitability by focusing R&D on the activities that fit the corporate strategy and ensuring the right patients have access to their medicines at the right price and time. MidPharmas can also increase commercial profitability by embracing external opportunities and reducing internal expenses.

MIDPHARMAS ARE GROWING TOP LINE REVENUE AT A FASTER RATE THAN BIG PHARMA

MidPharmas have grown revenue at a median of 6.2% over the last 5 years, exceeding Big Pharmas' median of 5%. Eight of the MidPharmas have 5-year revenue CAGRs over 20% and they are diverse in both ownership and business model: Bavarian Nordic (5-year revenue CAGR 45%), Genmab (37%), Morphosys (30%), and Valneva (26%) are all listed on public markets and R&D-based; Swixx (58%) and Cheplapharm (32%) are privately owned and Commercial; Dompé (24%) is privately owned and R&D-based; Rovi (22%) is listed privately-controlled and VAM. Impressive revenue growth can be achieved regardless of ownership structure and business model.

5-year revenue growth rates for MidPharmas and Big Pharma

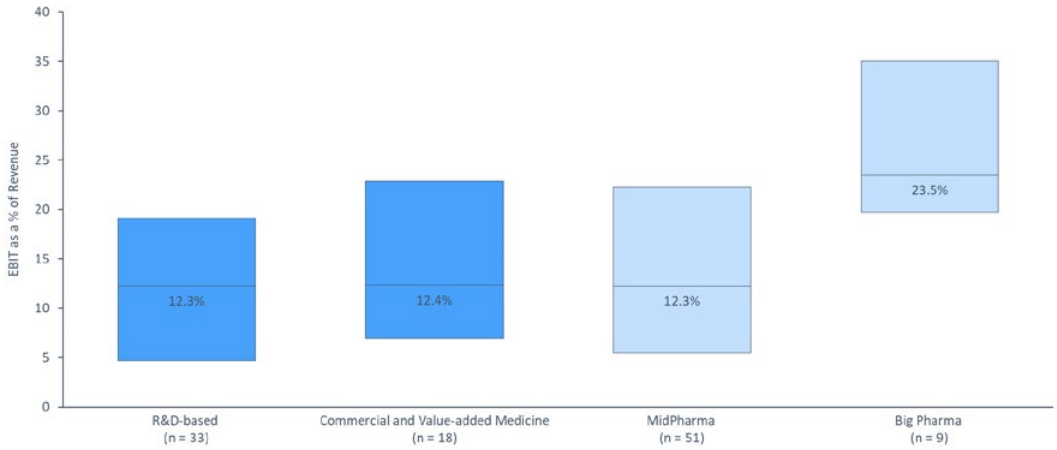


R&D-based MidPharmas match Big Pharma for revenue growth (median CAGR 5.2% versus 5.0%), whereas VAM (6.3%) and Commercial (7.1%) outpace Big Pharma. Commercial business models currently achieve better revenue growth, and such revenue growth has been attractive to Private Equity investors that seek a consistent and growing return from their investments.

MIDPHARMAS SIGNIFICANTLY UNDERPERFORM ON EBIT MARGIN COMPARED TO BIG PHARMA

Big Pharma EBIT margins are significantly higher than MidPharma (median 23.5% versus 12.3%). This is an indirect benefit of scale and access to capital. By contrast with MidPharmas, Big Pharmas have the capital to invest significantly more in R&D or acquire highly valuable products from other pharma and biotech companies. They are therefore more likely to create or buy the one or two blockbuster products that form the basis for very high profit margins while on-patent. Such scale can also mask inefficiencies in R&D or commercial disciplines for many years. Being listed has also provided Big Pharma with the cost discipline required for operational efficiency and profitability. Private companies can be less willing to lay off staff or divest the non-profitable parts of their businesses.

Annual profitability of MidPharmas and Big Pharma



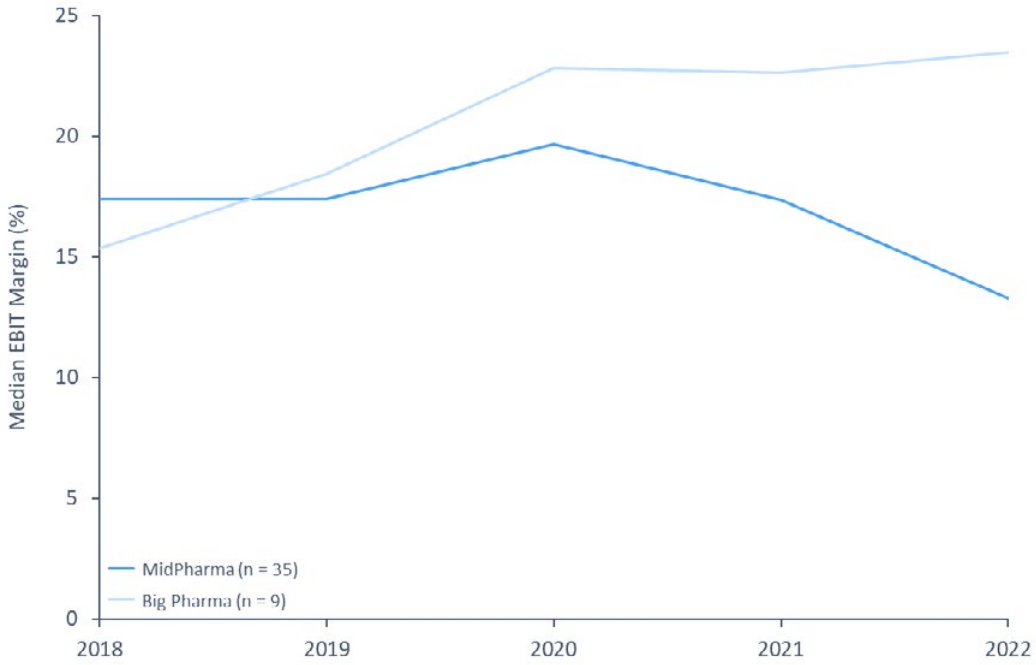
Interestingly it is not the R&D expense that is driving the lower profitability of MidPharmas compared with Big Pharma. The R&D-based and Commercial/VAM MidPharmas have comparable EBIT margins (median 12.3% versus 12.4%), even though the R&D-based companies invest much more in R&D as a proportion of revenue (median 14.7% versus 3.7%). Committing more revenue to R&D is therefore not the reason for MidPharmas' reduced EBIT margins. Commercial/VAM companies typically have less innovative marketed products than R&D-based companies, and price pressure on these less innovative products means they command lower gross margins than those in R&D-based companies, particularly if they have been originated by another party that requires a distribution deal or royalties. Again this is a business model choice, the commercial/VAM model is less risky than the R&D-based model, but the saving from investing less in R&D is balanced by the lower margins of a less innovative and/or partnered product portfolio.

As always with MidPharmas there are interesting exceptions and impressive outliers. For example the VAM-based MidPharma Rovi achieved an EBIT margin of 31% while limiting R&D expenditure to 3% of revenue. And R&D-based Ipsen achieved an EBIT margin of 37% while investing 15% of revenue in R&D.

THE PROFIT GAP BETWEEN MIDPHARMA AND BIG PHARMA IS WIDENING

The median EBIT margin of MidPharmas decreased from 20% to 13% between 2020 and 2022. In the same period the median EBIT margin of Big Pharma remained stable at around 23%.

Annual profitability trend of MidPharmas and Big Pharma



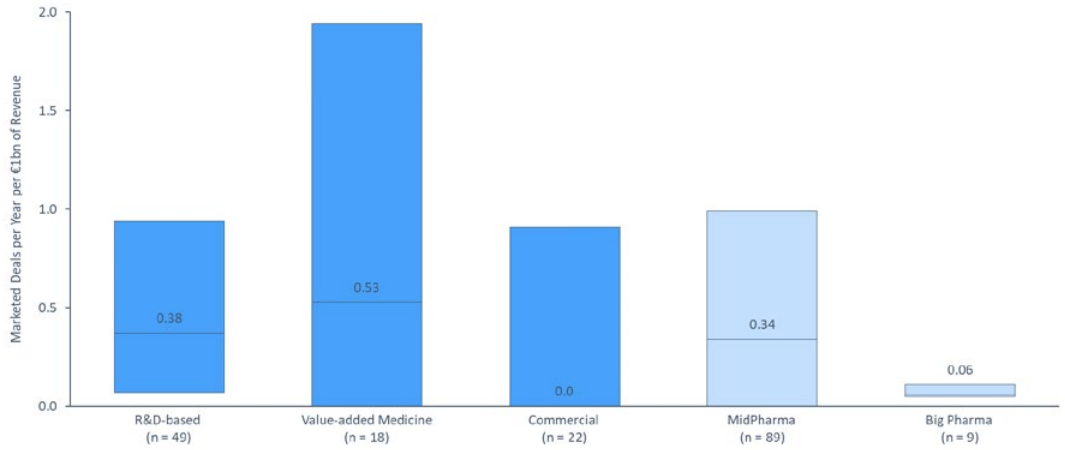
The notable EBIT divergence follows the start of the COVID-19 pandemic in 2020. In 2018 MidPharmas showed they are capable of out-performing Big Pharma on EBIT margin (17% versus 15%). This provides hope that MidPharmas, with the right leadership, can bounce back from the recent decline in EBIT.

FOR THEIR SCALE, MIDPHARMAS EXECUTE MORE DEALS FOR MARKETED PRODUCTS THAN BIG PHARMA

VAM MidPharmas executed the most deals for marketed products over the past five years with a median of 0.53 deals per year per €1bn revenue. The VAM group is also highly diverse which reflects the different approaches the companies take. Some focus on adding value to their own products while others focus on acquiring or in-licensing and adding value to products from other companies.

R&D-based MidPharmas executed considerably more deals for marketed products than Big Pharma (median 0.38 versus 0.06). Many Big Pharma have divested their established medicines businesses to focus on innovation and are less likely to make deals for marketed products. Acquiring marketed products is beneficial for R&D-based MidPharmas as it enables them to build out their on-market portfolios with lower-risk products that have sales histories and can provide guaranteed revenue. For example Chiesi acquired Amryt Pharma this year to expand its rare disease medicine portfolio, adding multiple marketed products for rare diseases.

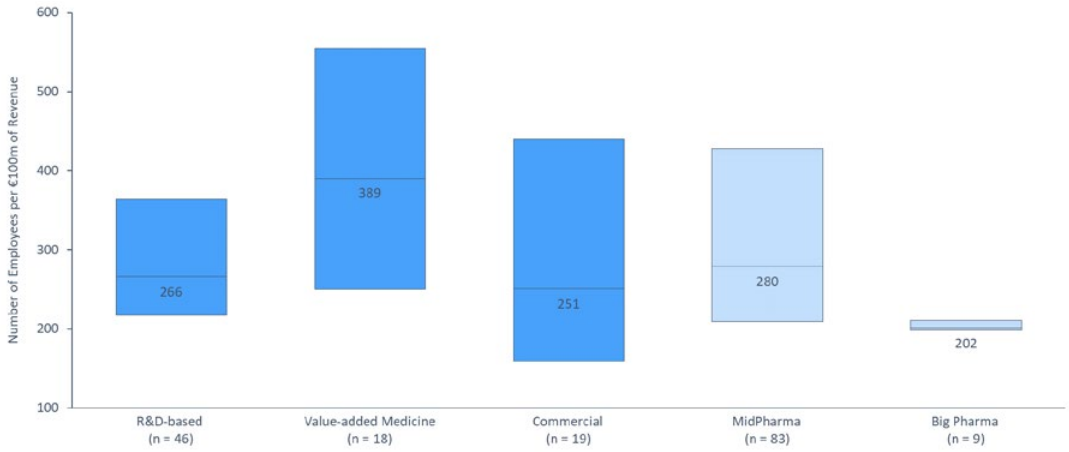
Marketed deals per year per €bn of revenue



MIDPHARMAS HAVE SCOPE TO REDUCE INTERNAL EXPENSES

Big Pharma are considerably leaner than MidPharmas in terms of the headcount that generates a given amount of revenue. The median number employees per €100m revenue was 202 for Big Pharma versus 280 for MidPharmas in 2022. This is driven by a proactive effort to create focused, simplified organisations and reduce expenses in order to improve profitability. Every Big Pharma in our group is public except for privately held Boehringer Ingelheim, which is as lean as its Big Pharma peers. Public ownership drives a lean corporate structure as shareholders and activist investors do not tolerate unnecessary internal expenses. Yet private ownership does not have to be a barrier to creating a lean organisation, indeed for many Private Equity funded MidPharmas it is an enabler.

Number of employees per €100m of revenue



MidPharmas with Commercial business models were the leanest (median 251 employees per €100m revenue) closely followed by R&D-based (266) then VAM (389). Higher SG&A costs resulting from larger numbers of employees to generate the same amount of revenue negatively impacts profitability. MidPharmas can improve profitability by following what many Big Pharma have already accomplished, creating leaner corporate structures that generate revenue more efficiently.

It is notable that as a whole R&D-based MidPharmas are only slightly less lean than their commercial MidPharma peers, even though they have R&D organisations that require headcount. Many of the VAM and Commercial MidPharmas avoid new product

innovation entirely, and instead have much leaner R&D organisations that are excellent at adding value to their own or others' on-market products.

For all MidPharmas, on-market portfolios must be managed in a way that maximises profit. Big Pharmas recognise this and have been simplifying and restructuring their commercial organisations, and divesting mature products that no longer deliver sufficient margins. MidPharmas can learn from this precedent and increase commercial profitability by divesting or out-licensing mature assets that no longer deliver the return they used to, and simplifying their commercial organisations to suit more focused portfolios.

HOW MIDPHARMAS MAINTAIN PROFITABLE COMMERCIALISATION

Profitable commercialisation starts with profitable products. So one of the key commercial roles in MidPharmas is to add value to R&D assets by ensuring they are developed for the right patient populations and with the right value proposition for physicians and payers. To supplement the flow of profitable products from R&D (or create a portfolio where the business model avoids NTE R&D) MidPharmas must acquire and in-license profitable products.

Insist on cross-functional working between relevant commercial and R&D functions

- Foster intense and open cross-functional collaboration between commercial and R&D functions, which over time may have become siloed

Seize opportunities to acquire or in-license profitable marketed products when available

- Selectively acquire or in-licence assets that increase profitability, not just provide revenue and keep the salesforce busy

Focus on marketed product profitability to reduce unnecessary SG&A and R&D expenses

- Divest or close areas of business that increase complexity and do not generate profitability when all commercial, manufacturing, regulatory and R&D costs are considered

SECTION 4

NOVASECTA'S EUROPEAN MIDPHARMA PERFORMANCE RANKING 2023

4

NOVASECTA'S EUROPEAN MIDPHARMA PERFORMANCE RANKING 2023

Because 69% of MidPharmas are fully privately controlled with no market capitalisation, we have compared their performance using an alternative measure. We ranked MidPharmas using a combination of 5-year revenue CAGR and the most recent revenue and EBIT margin. This provides an integrated perspective on the growth, current size, and profitability of each of the 51 MidPharmas that disclose such data:

Rank	Business Model	Company	Revenue CAGR	Absolute Revenue	EBIT Margin
1	R	Genmab	●	◕	●
2	R	Sobi	●	◕	●
3	R	Octapharma	◕	●	◕
=3	V	Rovi	●	◑	●
5	R	Chiesi	◕	●	◑
6	C	Dermapharm	●	◑	●
7	R	Ipsen	◔	●	●
8	R	Gedeon Richter	◕	◕	◕
=8	R	Merck Healthcare	◔	●	●
10	R	Orion	◑	◕	●
11	R	Recordati	◑	◕	◕
12	R	Grifols	◑	●	◑
13	V	Krka	◔	◕	◕
14	V	Fresenius Kabi	◔	●	◑
15	V	Hikma	◑	●	◔
16	C	Orifarm	●	◕	○
17	C	Faes	◑	◔	◕
=17	R	Grunenthal	◔	◕	◑
19	C	Clinigen	◕	◑	◑
=19	R	Lundbeck	○	●	◕
=19	R	UCB	◔	●	◔
22	R	ALK	◕	◔	◔
=22	R	Kedrion	◔	◑	◑
24	R	Evotec	●	◑	○
25	C	Alliance	◑	○	◕
=25	R	Servier	○	●	◔
27	R	Bavarian Nordic	●	◔	○
28	V	Fidia	◑	◔	◑
=28	C	Vianex	◕	◔	◔
30	C	Sopharma	◕	◑	◔
=30	R	Stallergenes	◑	◔	◕
=30	R	Dr. Falk	◔	◔	◕
33	C	Yuria	◑	○	●
34	R	Ferring	○	◕	◔
35	R	Galapagos	●	◔	○
=35	R	Valneva	●	◔	○
37	R	MorphoSys	●	○	○
38	R	PharmaMar	◔	○	◕
=38	V	Zentiva	◑	○	◑
40	C	Theramex	◕	○	◔
41	R	Abiogen	○	○	●
42	R	Pharming	◕	○	◔
=42	V	Reig Jofre	◕	○	○
44	R	Almirall	○	◑	◔
45	V	Elpen	○	○	●
46	R	Esteve	○	◑	◑
=46	R	LEO	○	◕	○
48	R	Merz	○	◑	○
49	R	Bial	◔	◔	○
50	R	Indivior	○	◑	○
51	C	Olainfarm	○	○	◑

● Public
◕ Listed Privately-controlled
○ Private
R R&D-based
V Value-added Medicine
C Commercial

The top dozen MidPharmas in our ranking this year have all achieved impressive growth and profitability compared to their MidPharma peers. They are a mixture of public, private, R&D-based, VAM, and Commercial, demonstrating excellence can be achieved regardless of ownership structure or business model. That said, half of this year's top 12 are listed privately controlled, with both a dominant (>50% shareholder) and a public market listing. Perhaps they have the best of both worlds by combining the long-term perspective required to succeed in pharma with a public market listing that provides both financial discipline and access to growth capital.

The lowest ranked 10 MidPharmas are mostly privately owned, suggesting that sustained growth and profitability may be more difficult without external investors. However private ownership does not have to be a barrier to growth and profitability: Octapharma and Chiesi are privately owned and rank 3rd and 5th respectively.

SECTION 5

CONCLUSION

European-headquartered MidPharmas are here to stay. They form a remarkably resilient sector of the global pharmaceutical industry, with many companies that have sustainably and profitability grown over many years. This is partly down to ownership structure, with 78% of the 93 companies being privately-controlled. It is also down to having a combination of the focus and decision-making speed of pre-revenue biotechs, with the commercial and medical capabilities of BigPharma.

5 CONCLUSION

Achieving the winning combination of the focus and speed of biotech with the capabilities of Big Pharma is tough. Unlike biotechs, some MidPharmas have bureaucratic decision-making, and unlike Big Pharma some MidPharmas lack the scale to build or acquire strong product pipelines. The most successful MidPharmas relentlessly reinforce a strategic focus, increase R&D productivity and maintain profitable commercialisation.

Novasecta has supported pharmaceutical leaders to achieve strategic and operational excellence over many years and has a particularly strong track record in doing so with MidPharmas. We enable companies to create and provide access to treatments that make a meaningful difference to patients' lives. We draw on extensive experience to apply practical lessons learned from MidPharmas, pre-revenue biotechs and Big Pharma. We create solutions that are considerate of each company's legacy, ownership structure, resource constraints, and goals.

Novasecta

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