West Pharmaceutical Research Primer

BI Biopharma Services, Global Dashboard

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1. BI Primer: West's Mix Shift to Improve 2H; Long-Term Growth Rate

(Bloomberg Intelligence) -- West's organic growth and margins stand to improve in the latter half of 2018, with recoveries in Pharma and Biologics. Growth targets are achievable longer term, though the market must accelerate adoption of West's high-value products for it to meet or exceed the high end. West has a highly defensive business model with sticky, recurring revenue streams. The company has ample capacity to pursue strategic options or return capital to shareholders, which the market is factoring in, given the stock's premium to its historical multiple. (07/31/18)

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Financial Review

Earnings

2. West's Beat Eases 2H Ramp; Forecast Improved: Earnings Outlook

Post-2Q Earnings Outlook: West's 9% organic growth in 2Q was well ahead of low-single-digit expectations and flattens the company's 2H ramp-up to meet consensus. With mid- to high-single-digit growth in Biologics and Generics, and mid-single-digit in Pharma, we see a scenario where West could deliver 7% organic growth this year vs. pre-report consensus of 5%. This also factors the euro as a headwind in 2H, while currency contributed 5% to the top line in 1H.

West's large pharma customers are now starting to adopt high-value products. This, and its efficiency measures and product ramp-up in Waterford, should materialize in more than 100 bps of margin improvement in 2H vs. 1H. (07/26/18)

Highlights From Recent Results:

- Organic Revenue Rose 9%, Driven by High-Single-Digit Growth in Pharma and 17% Growth in Contract Manufacturing | BI »
- Efficiency Measures Expected to Improve Gross Margins in 2H, Notably in Contract Manufacturing | DOCC »
- West's Lowered Capital Spending Outlook of $120-$130 Million Will Improve Free Cash and Mitigate Effects of Its Growing Working Capital | DOCC »
- West Reaffirmed Its 2018 EPS Forecast for $2.85 at the Midpoint | GUID »

Additional Resources:

- Analyzer | BI »
- Earnings Release | NSN »
- Earnings Call Transcript | DOCC »
- Company Presentation | DOCC »

Bloomberg Intelligence

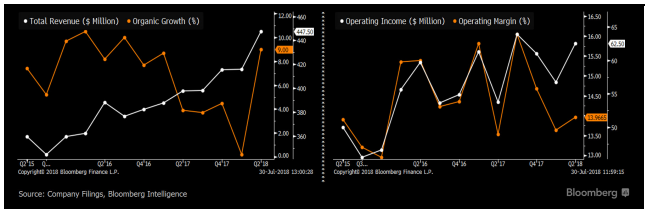
Financial Trends

3. West's Product Mix Is the Key to Achieve Long-Term Growth

West's dominant market position and premium pricing posture place a premium on the company's ability to convert customer adoption to its higher-value product suite to achieve its long-term growth targets. Proprietary products introduced over the past five years contributed to 100 bps of organic growth in 2017, and the continued ramp-up in Amgen's Repatha sales and a large pharma conversion win in 2017 will incrementally shift West's product mix over the next several years.

The company's ensuing plant consolidations will help it track toward its annual goal of 100-bp margin improvement in 2018, although ongoing gross-margin improvement rests heavily on higher price-per-unit proprietary sales. (07/31/18)

Organic Growth, Operating Margin



Key Research

Defensive Business Model

West Has Injectables Market Leadership With High Entry Barriers

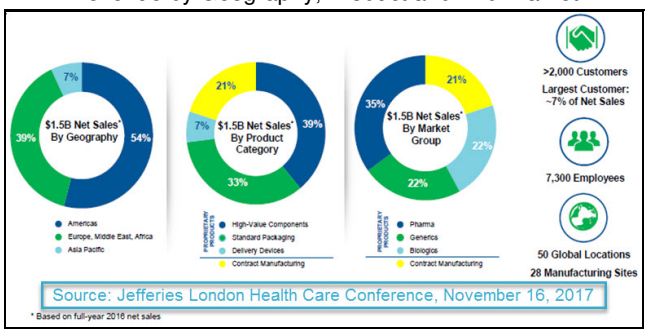
West Pharmaceutical Research is the dominant player in the injectable-drug packaging and containment market and is likely to maintain its entrenched position for the foreseeable future. High barriers to entry in the form of fixed-cost investment and high regulatory hurdles fortify its market position. (05/24/18)

4. Well-Diversified Revenue Base With Little Customer Concentration

West Pharma's business mix is well diversified and relatively balanced across the major biopharma end markets. This enables the company to participate in the entire lifecycle for injectable drugs from development to innovative commercialization and through off-patent marketing. The company's top customer, Becton Dickinson, comprises less than 7% of the sales, which is below industry median top customer concentration for the contract research organization industry.

The company operates two business segments. Proprietary Products comprised 77% of revenue, and Contract Manufacturing 23%, in 2017. (05/24/18)

Revenue by Geography, Product and End-Market

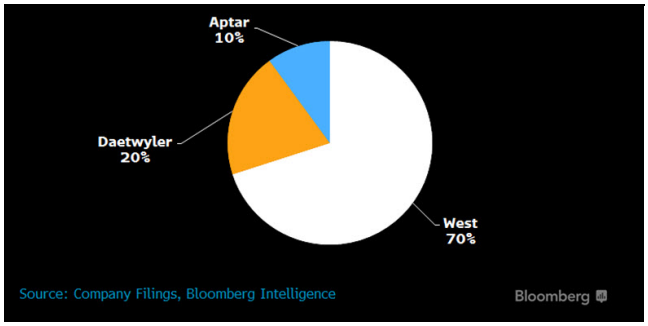


5. Dominant in Injectable Containment and Packaging

West hold the lion's share of the injectable-drug containment and packaging rubber market. The company has maintained its 70% market share for several years and the capital requirements to participate in the industry provide the company with a wide economic moat around its market position. High regulatory burdens and the multiyear process to validate and gain inclusion on the master drug file for an approved pharmaceutical are also structural barriers that fortify West's highly defensive business model.

Given its already sizable market share, West is more likely to drive incremental growth from product conversions than additional share gains. High-value components were 17% of components delivered in 2017 and high-value product sales represent more than half of Proprietary Product sales. (05/24/18)

Drug Containment & Packaging, Rubber, Market Share

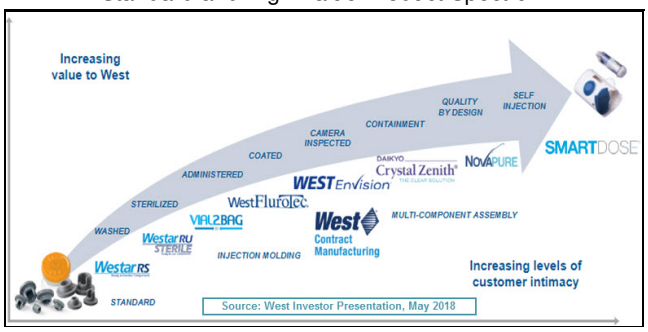


6. Conversion to High-Value Products Improve Economics

The company operates several business lines that offer add-on services or enhanced drug-containment systems that yield greater economics than its standard product line. These high-value products generate revenue and absolute profit at multiples higher than standard products. For example, high-value products generate 9 cents in revenue per component vs. 2 cents for standard products. SmartDose proprietary products can generate as much as $100 of revenue per unit.

Each 1% conversion to high-value generates an additional 3-4% top-line growth. High-value products were 17% of components delivered in 2017 and sales are expected to generate high-single- to low-double-digit growth in 2018. (05/24/18)

Standard and High Value Product Spectrum



7. Generics Gains Momentum, Pharma Needs to Recover

A rebound in the generic-drug end-market, which languished for most of 2017, will moderate the lagging performance in the Pharma market and enable West to meet the low end of its 6-8% organic growth target in 2018. Inventory destocking and regulatory issues overseas suppressed volume delivered to generics customers. Destocking will continue to abate, given West has implemented operation improvements that have improved customer lead times.

Despite momentum from Generics, an inflection in Pharma is necessary to maintain investor confidence in West's full-year outlook, which now calls for 8-11% growth on average through year-end to meet the low end of expectations. (05/24/18)

West Organic Sales Growth

	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Overall Organic Sales Growth	8.7%	3.9%	3.7%	4.5%	0.2%
Biologics	MSD	MSD	MSD*	DD	(LSD)
Generics	(MSD)	(MSD)	LSD	HSD	HSD
Pharma	DD	HSD*	(MSD)*	(MSD)*	(HSD)
Contract Manufacturing	DD	DD	DD	DD	HSD

* Represents a reclassification of certain customer sales. This reclassification had no impact on 2017 overall organic sales growth or Proprietary Products segment organic sales growth.

Source: West 1Q18 Presentation, April 2018

Margin Expansion

West's Large Pharma Conversion Gives Margin Expansion Visibility

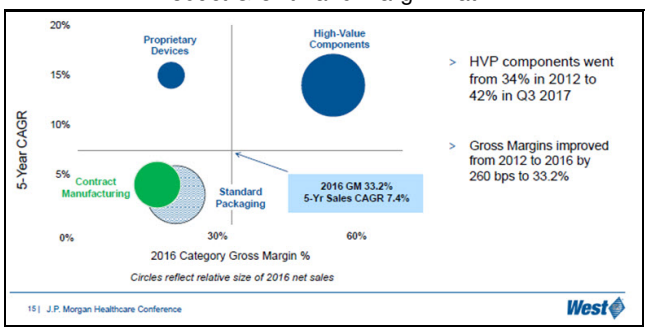
West Pharmaceutical's large pharma conversion win to higher-margin products will accelerate the secular mix shift in 2018 and improve gross margin. Ongoing lean initiatives will also boost operating margin improvement. (05/25/18)

8. Greater Proprietary Volume Path to Improved Margin

The increasing adoption of high-value components coupled with customer conversions from standard products are the key drivers for West's margin expansion. The company's high-value products are growing above the composite rate and have a disproportionate effect on corporate margin, given they generate more than twice the level of gross profit compared with standard packaging, and contract manufacturing. This mix shift will generate 50-70 bps of margin expansion a year, while lean initiatives will add 30-40 bps.

The company will more than double the proprietary devices gross margin when it achieves greater scale. Crystal Zenith and SmartDose generated $40 million in revenue in 2017 and $9 million in 1Q. (05/25/18)

Product Growth and Margin Matrix



9. Glimpse at 2018 Highlights Operating Margin

West is banking on improvements in its product mix to achieve its 100-bp target for operating margin expansion in 2018 and says that this is sustainable over the long term. The company secured a major contract with large pharma in 1H17 to convert its drug delivery entirely to high-value products from standard components. Volume from this conversion will likely ramp up more meaningfully in 2018. Analysts are estimating operating margin of 15.1% in 2Q and 15.6% in 2018. (05/25/18)

Bloomberg Transcript

"Looking forward to 2018, we expect organic sales growth in the range of 6-8%, as a result of market volume growth and continued high-value product conversions ... gross margins to expand as product mix continues its trend towards high-value products ... operating profit margin expansion on average of 100 basis points per year. ... Capex is expected to be in the range of between $150 million to $175 million. Our preferred capital allocation is to invest in our high-value growth products."

Eric Green - CEO, West Pharmaceutical
3Q17 Earnings Call, Oct. 26, 2017

Quote located on page 3, click to view entire transcript

Amgen Growth Opportunity

West Leveraged to Amgen's Continued Gains in PCSK9 Marathon

Contributing Analysts Asthika Goonewardene (Biotech & Pharma)

Amgen's renegotiated payer contracts could accelerate Repatha unit sales in the U.S., where it's expanding its share over Sanofi's Praluent. Repatha is delivered with West's proprietary SmartDose technology, its highest-price and profit-producing component. Increased unit sales of Repatha would accelerate West's positive mix shift and growth prospects. (08/06/18)

10. Amgen's Price Reductions a Positive for Unit Sales

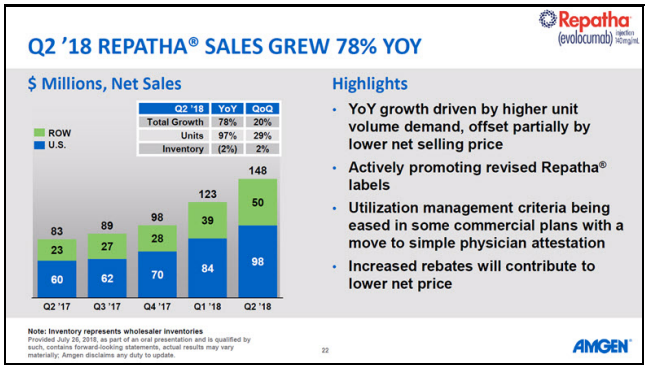
Contributing Analysts Asthika Goonewardene (Biotech & Pharma)

Amgen's recent actions to expand patient access should accelerate adoption of Repatha and, correspondingly, West's top line, given West makes the proprietary drug-delivery device. Amgen renegotiated with several payers in the U.S., including CVS and Anthem, which comprise 65% of Repatha's commercial revenue. The new terms include fewer barriers to prescribing Repatha in exchange for a lower net price to payers. Amgen expects the

changes to take place in 2H. Repatha's net price has fallen to $7,000 a year, near the top of the Institute for Clinical and Economic Review's (ICER) recommended range, and it could erode further.

Consensus calls for Repatha sales of $620 million in 2018, $994 million in 2019 and $1.46 billion in 2020. (08/06/18)

Total Repatha Sales, 2Q17-2Q18



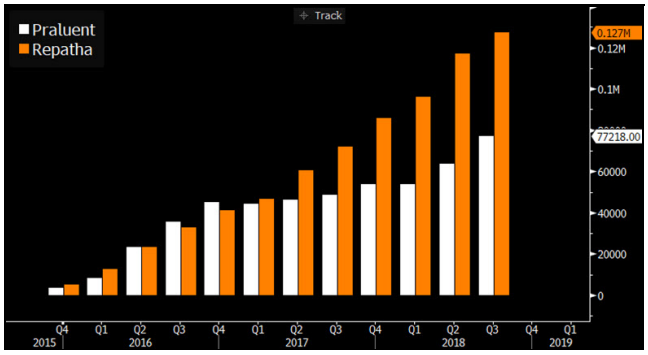
11. Sanofi-Regeneron's Praluent Volume Ticks Up

Contributing Analysts Michael Shah (Pharma) & Sam Fazeli (Pharma)

U.S. volume for Sanofi-Regeneron's Praluent gained 21% sequentially in 3Q, the second successive quarter of sequential double-digit gains. Acceleration in growth is being underpinned by an aggressive pricing strategy, helping to overcome prescribing hurdles, along with positive outcomes data that will support a label upgrade in April, leveling the playing field vs. Amgen's Repatha. By contrast, Repatha volume increased 9% in 3Q, albeit off a higher base, having posted consistent double-digit growth since the 2015 launch. Amgen will need to follow suit on pricing to protect market share, which stood at 62% in 3Q, down 270 bps vs. 2Q.

Repatha and Praluent have similar efficacy and safety profiles, and both drugs showed a 15% reduction in major adverse cardiovascular events in their outcomes studies. (10/18/18)

U.S. Retail Volume of PCSK9-Class Drugs



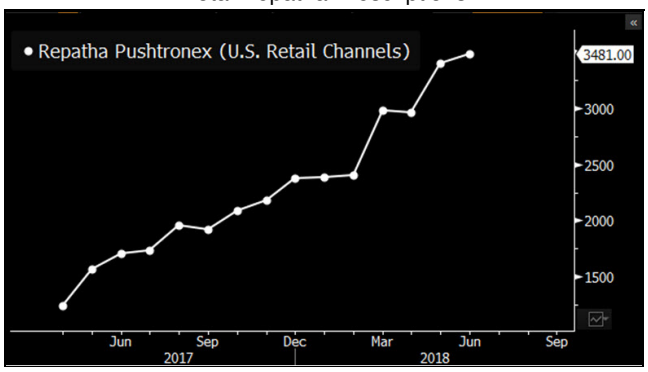
12. Repatha Approval Could Accelerate High-Value Adoption

Amgen's Repatha is on a steep sales ramp and the FDA's recent label expansion could accelerate the drug's sales, which would directly benefit West, given its SmartDose technology is used for Repatha Pushtronex. Under priority review, the FDA approved the inclusion of Repatha outcomes study Fourier. This enables Amgen to seek broader payer coverage for Repatha. The increased volume would also accelerate West's high-value product mix

and thus its organic growth and margin expansion.

The FDA approved Repatha as the first PCSK9 to prevent heart attacks, strokes and coronary revascularizations on Dec. 1. We estimate that this device alone will contribute 25 bps to West's organic growth in 2018. (08/06/18)

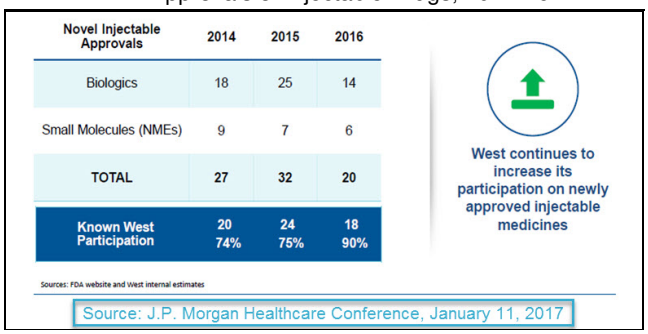
Total Repatha Prescriptions



13. Lion's Share of FDA-Approved Injectables

West Pharma is taking more than its fair share of product participation in injectable approvals. Since 2014, the company has provided products and services to a growing proportion of the number of FDA-approved injectables, and above its 70% market share of the injectable-packaging and containment market. The company participated in all of the injectable drugs approved in 2017 and will continue to benefit from the increasing number of injectable-drug candidates flowing though biopharma pipelines. (08/06/18)

FDA Approvals of Injectable Drugs, 2014-16



Balance Sheet Power

West's Capital Management Leaves Plenty of Balance Sheet Power

West Pharmaceutical's cash flow generation is more than adequate to cover its annual capital spending and dividend obligations and the company continues to operate with a positive net cash balance. The company's untapped balance sheet provides ample capacity to buy growth or return capital to shareholders. (05/24/18)

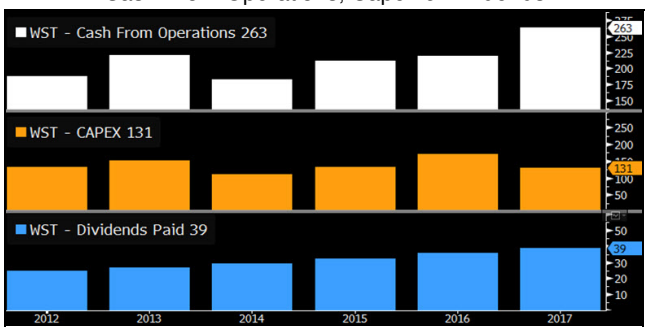
14. Cash Sufficient for Capital Spending, Dividends

West Pharma's healthy cash flow allows the company to fund its annual capital spending and dividend obligations without having to tap the capital markets. Over the past five years, West's operating cash flow-to-net income ratio has ranged from 1.3-2.3x, indicative of the cash-generating power of its business model and comparatively

favorable to other manufacturing entities. The company repurchased $78 million in stock in 2017, and $48 million during 1Q, largely to prevent dilution from equity compensation.

West is increasing its capital spending allocated to growth initiatives and will generate enough cash to meet this increased use of funds as well as its about $40 million in annual dividend payments. (05/24/18)

Cash From Operations, Capex & Dividends



15. Balance Sheet Has Ample Capacity for M&A, Return of Capital

West's prudent capital management provides ample capacity to pursue M&A to augment its organic growth initiatives. However, the company has only executed one acquisition in this decade and the majority of the asset purchases made over the past 20 years have been technology bolt-ons. West ended 2017 in a positive net cash position on its balance sheet and is underlevered compared with the 2.5-3.5x target leverage ratios that most peers in the contract biopharma services operate.

BI's sensitivity analysis shows that West has the balance sheet capacity to generate 19-34% Ebitda accretion in 2018-19 through M&A under various leverage scenarios. (05/24/18)

Accretion Sensitivity Analysis

	3.0x	3.5x	4.0x	4.5x	5.0x
M&A Capacity					
2018E	$ 979	$1,141	$1,304	$1,467	$1,630
2019E	$1,124	$1,311	$1,498	$1,685	$1,872
EBITDA Accretion					
2018E	18.8%	22.0%	25.1%	28.2%	31.4%
2019E	20.1%	23.5%	26.8%	30.2%	33.5%

Source: Bloomberg Intelligence
Bloomberg
Note: Assumes purchase price of 3.0x sales and similar margins as the consensus forecast for 2018E and 2019E.

Biologics Outsourcing

Swelling Biologics Wave to Benefit Drug Service Providers

Biotechnology prescription-drug sales are expected to accelerate in the next five years, with biopharma contract-services companies standing to benefit from market growth and increased share. Drug companies cite manufacturing costs and complexity as reasons for an increased willingness to outsource work and validate external-capacity expansion initiatives. Last reviewed by Justin Bowers on 08/22/18, original publish: (03/09/18)

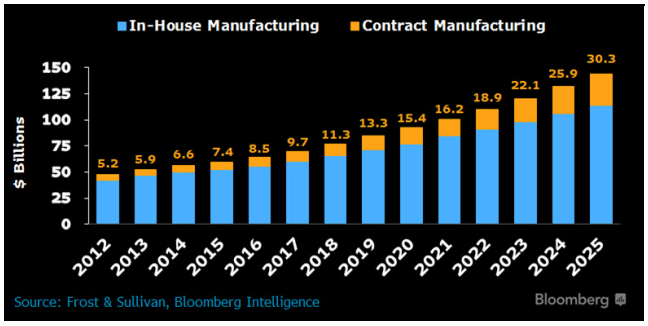
16. Biologics Manufacturing Market to Expand Low Double Digits

Bloomberg Intelligence

The market for outsourced biologics-manufacturing service providers is projected to grow 14% compounded annually the next several years, well above the high-single-digit and mid-single-digit growth rates for biotech and prescription drug spending. Biologics manufacturing capacity is largely concentrated among pioneering biotech companies such as Amgen, Genetech (Roche) and Genzyme (Sanofi). Yet the proliferation of emerging biotechnology companies coupled with the secular shift of personalized medicine addressing smaller patient pools is boosting demand for external manufacturing capacity from emerging biotech and large biopharma.

As of 2015, the global contract manufacturing market for biologics was worth $7.4 billion and is expected to reach $30.3 billion by 2025, yielding a growth rate of 13.7% Last reviewed by Justin Bowers on 08/22/18, original publish: (03/09/18)

Global Biologics Manufacturing Market



17. Charles River Expansion a Positive Signpost for Biologics Demand

Charles River's announcement that it's expanding its biologics manufacturing and testing footprint is a positive sign that demand for outsourced biologics services is healthy, notably in discovery and early stage research and development. This also triangulates with data showing an increasing number of pre-clinical and early-phase candidates flowing through drug-sponsor pipelines. Charles River is expanding capacity at four facilities to meet increased demand for biologics and biosimilar testing and development.

Charles River's biologics segment generates double-digit growth. The company competes with Eurofins Scientific and WuXi Biologics in discovery and testing. Last reviewed by Justin Bowers on 08/22/18, original publish: (03/09/18)

Company Press Release

"The high volume of biologics and biosimilars in development has led to a rapid increase in demand for our services. The continued expansion of our biologics service portfolio and additional capacity will further enhance our ability to support clients' development efforts from discovery through clinical phases and commercial manufacturing."

Greg Beattie - Corporate VP, Global Biologics Testing Solutions, Charles River
Company Press Release, March 8, 2018

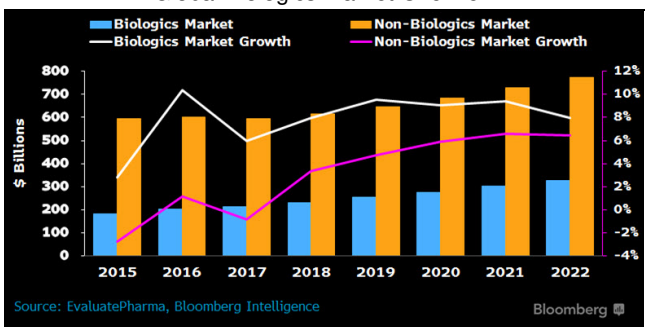
Click to view entire press release

18. Biologics Growth to Drive Worldwide Prescription Spending

Shifting R&D prioritizations by biopharma and favorable regulatory pathways will increase biotechnology drug spending at a faster rate than overall drug outlay. Biologics sales are expected to increase 8-10% through 2022 vs. 3-7% for all other drugs. Companies providing discovery services (Charles River and Eurofins), contract development and manufacturing (AGC Biologics, Boehringer Ingleheim, Catalent, Lonza, Samsung, West and WuXi) and tools (Agilent, Bruker, Danaher, General Electric, Merck KGAa, Sartorius, Thermo and Waters) for

biologics will benefit from this secular growth trend. Last reviewed by Justin Bowers on 08/22/18, original publish: (03/09/18)

Global Biologics Market Overview

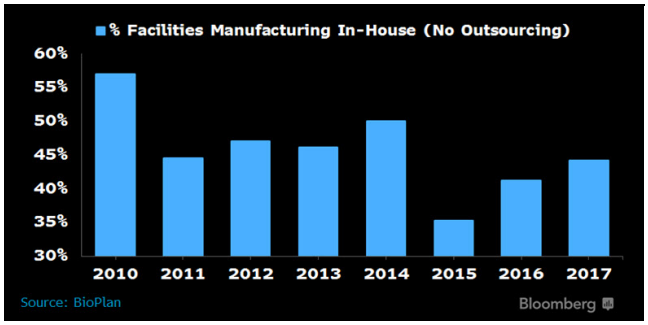


19. Biologics Manufacturing Shifting Externally

Demand for specialized contract manufacturing is expanding, driven by external market forces as well as internal economic decisions. Large pharma is allocating a greater proportion of pipeline resources on large molecules through organic and inorganic efforts, while a robust funding environment is proliferating the number of biologics in emerging biotech pipelines. Larger biopharmas with in-house capabilities are also outsourcing selectively when it enhances ROI vs. other capital-spending decisions.

The proportion of facilities producing biologics in-house has declined to 44% in 2017 from 57% in 2010, a recent BioPlan survey shows. Companies positioned to benefit from this include Avid Biosciences, Catalent, Charles River, Lonza, Patheon (Thermo Fisher), Samsung Biologics, West and WuXi Biologics. Last reviewed by Justin Bowers on 08/22/18, original publish: (05/14/18)

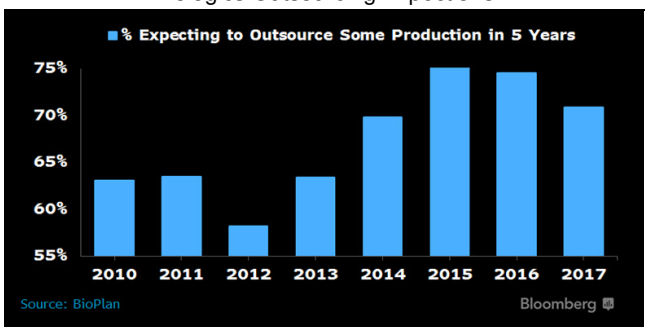
Facilities Manufacturing In-House



20. More Companies Expect to Outsource Production

Contract-manufacturing organizations (CMOs) will further penetrate the biologics production market, based on the outsourcing expectations by biotechnology drug sponsors. The percentage of drug companies expecting to outsource some portion of their biologics manufacturing over the next five years has increased to the low- to mid-70s from the low- to mid-60s earlier this decade, survey data from BioPlan show. Last reviewed by Justin Bowers on 08/22/18, original publish: (05/14/18)

Biologics Outsourcing Expections



21. Industry Feedback Validates Survey Findings

Discussions with drug sponsors at recent industry events provides qualitative support to the survey findings pointing to increased biologics manufacturing outsourcing. Small- to midsized biotechs in preclinical and clinical stages widely reported that they would initiate or expand outsourcing. One large biotech company that is manufacturing all its biologics in-house indicated that it's likely to begin contracting externally since it expects capacity constraints due to its growth plan.

Contract manufacturing organizations will benefit from the projected acceleration in biotech drug spending, which is forecast to grow at a 8.8% annual rate from 2017-22 vs. 7.5% in the prior five-year period. In 1Q, biotech drug sales increased 5.6% year-over-year. Last reviewed by Justin Bowers on 08/22/18, original publish: (05/14/18)

Biotechnology Prescription Drug Sales