

Life Sciences
Digital Services
RadarView™ 2020-2021
– Report Excerpt

Driving innovation through
emerging technologies

April 2020

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Executive Summary

Key recommendations for life sciences companies

Redirect R&D budgets to build differentiated and patentable therapies for chronic and rare diseases

- Increase the funding of therapies and drug development for chronic diseases, including cancer, heart diseases, diabetes, and rare diseases to cater to the changing population demographics.
- Free up capital for R&D by shifting new molecule research budgets from non-chronic diseases to biosimilars and generics to take advantage of their quicker development cycles and lower cost.

Identify applications for emerging tech, and implement them across the drug development lifecycle

- Optimize drug development processes by leveraging digital technologies such as automation in pharmacovigilance processes and machine learning in identifying the right set of patients for testing.
- Make data capture and analysis central across the lifecycle – from clinical trials (IoT integrated medical devices for real-time patient data), to treatments (sensors in pills), and remote monitoring.

Chart an investment plan to accelerate IoMT adoption by targeting customers and healthcare enterprises

- Partner with consumer companies such as Apple and Fitbit to tap into the consumer IoMT (Internet of Medical Things) market by targeting health conscious individuals and patients with chronic disease.
- Invest in cybersecurity solutions and standardization of IoMT devices (for interoperability) for increased IoMT adoption by healthcare providers and approvals by healthcare payors.

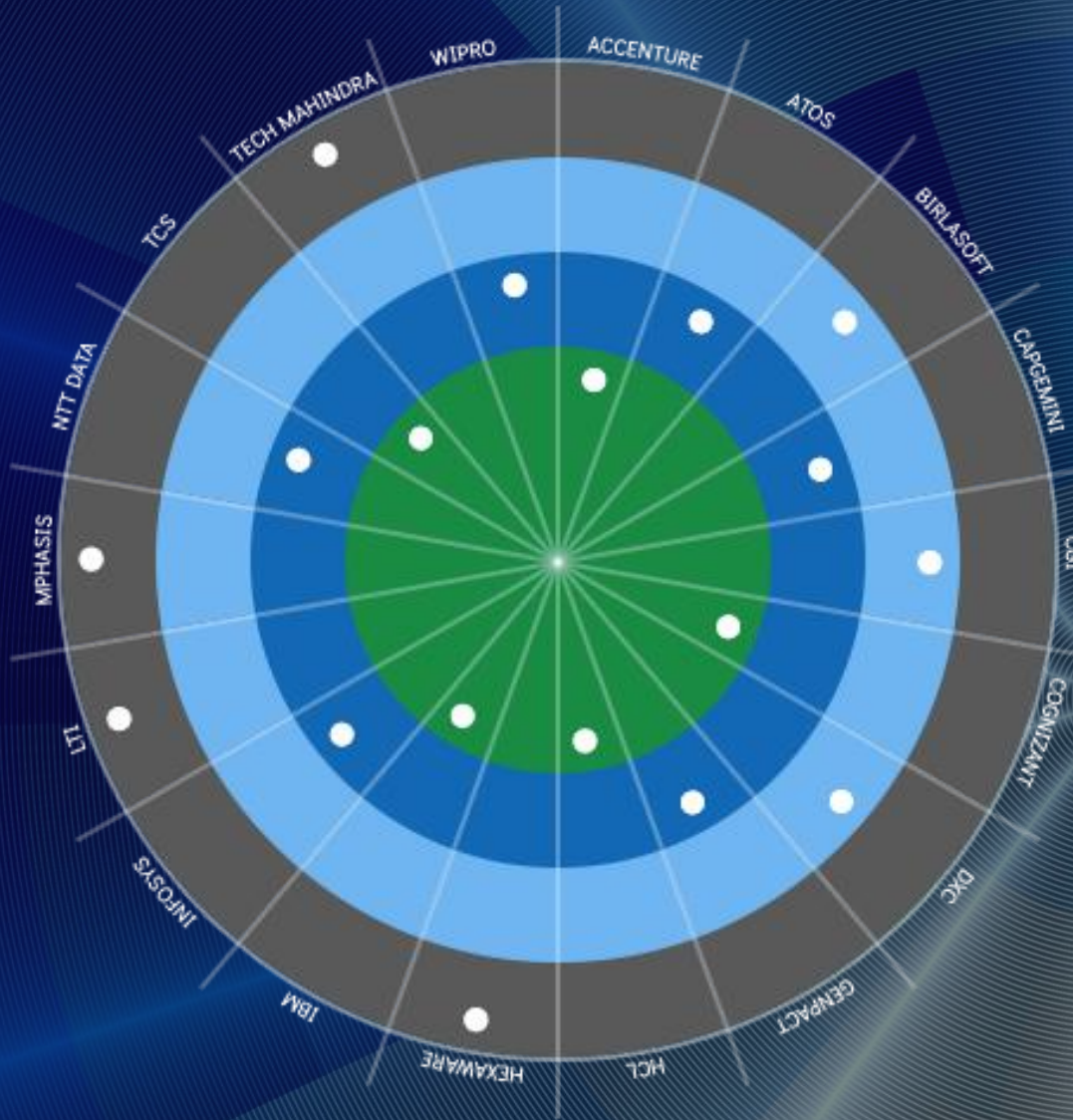
Invest in cutting edge technology (AI) to accelerate to the next frontier - precision medicine

- Accelerate the penetration of precision medicine by leveraging AI and analytics to generate insights critical for drug development, personalized treatment combinations, and prediction of disease risk.
- Partner with, and fund start-ups, to access niche expertise and digital capabilities (automation, AI, analytics) for innovative design of clinical trials, genomics, and to launch next-gen therapeutics.

Actively pursue inorganic routes to drive business growth through portfolio management

- Evaluate acquisitions of life sciences companies to drive business growth by integrating complementary portfolio, expanding geographical footprints, reducing dependencies on few drugs.
- Proactively consider divestiture of under-performing business units to generate capital for prioritizing the research and development of drugs/therapies and optimization of products portfolio.

Avasant has recognized 18 top-tier providers supporting life sciences industry in digital transformation



LEADERS

Accenture
Cognizant
HCL

IBM
TCS

INNOVATORS

Atos
Capgemini
Genpact

Infosys
NTT DATA
Wipro

DISRUPTORS

Birlasoft
CGI

DXC

CHALLENGERS

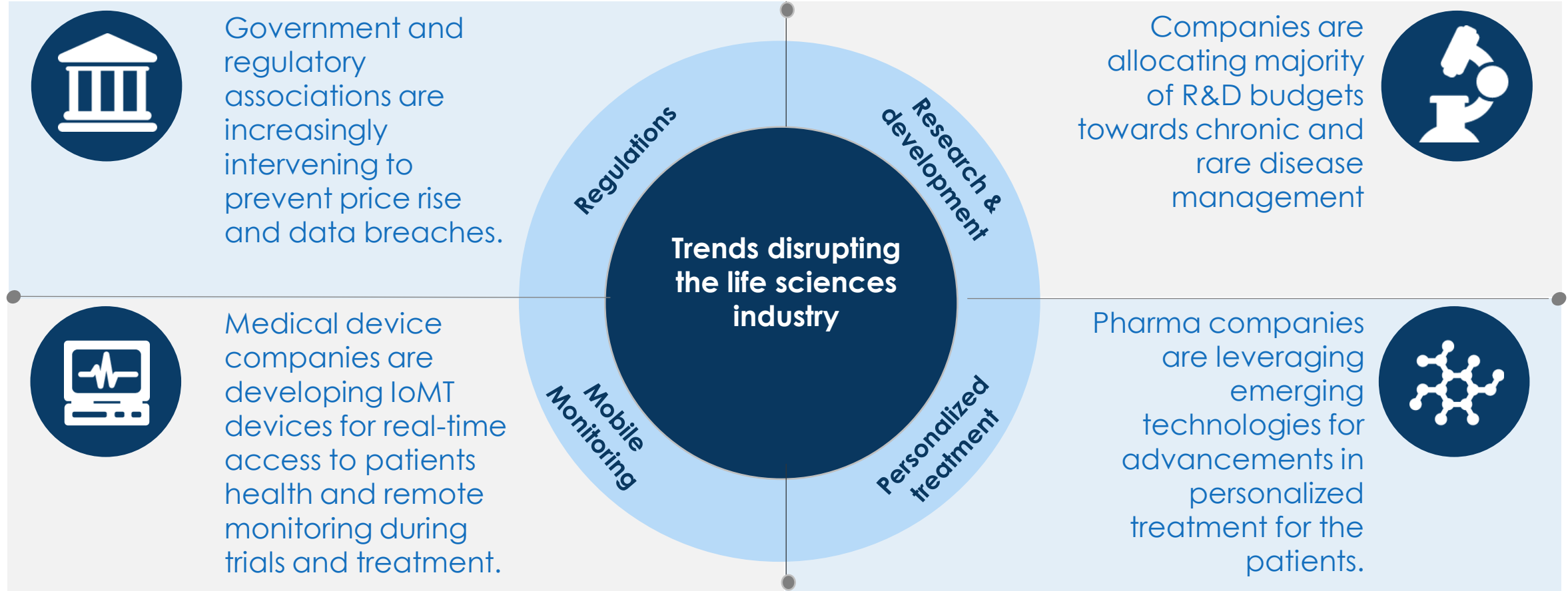
Hexaware
LTI

Mphasis
Tech Mahindra



Sample Report Pages

Life sciences industry is transforming due to demographic transition, regulatory pressure and tech possibilities







Adoption of IoMT devices is driven by patients' mobile monitoring, improved drug management and treatment



Healthcare companies are increasingly adopting IoMT for improved patient care

11%
Of all IoT projects (development and implementation) addressed the life sciences and healthcare industry in last 12 months.









Use cases for IoMT adoption	Illustrative examples	
	Company	Description
Remote monitoring: real-time updates to the chronic diseases patients' health	 Senseonics	<ul style="list-style-type: none"> Developed a prescriptive device for diabetic patients for continuous monitoring of glucose. Provides real-time updates on glucose levels after every 5 minutes for up to 90 days at a time.
Improve drug management: sensor embedded pills to send signals from body to external devices	 CapsoVision	<ul style="list-style-type: none"> Developed a smart pill, CapsoCam Plus, to provide a full 360° panoramic lateral view of the internal organs of body. Currently used in >70 countries across the globe.
Asset tracking: improve operational efficiencies through real-time tracking of patients, medical devices	 sonitor	<ul style="list-style-type: none"> Developed multiple RTLS (real-time location systems) devices including tags, badges in hospital premises. Applications are – patient wandering, infant protection, theft prevention, etc.
Improve diagnosis and treatment: AI powered IoMT for assistance in diagnosis and treatment of patients	 INTUITIVE SURGICAL	<ul style="list-style-type: none"> Ion, a robotic endoluminal system is designed to assist surgeons in performing minimally invasive biopsies deep in the lung. Ion can integrate with existing imaging technology.

With growing focus on chronic disease management and adoption of technologies for patients' treatment by healthcare companies, life sciences companies are developing IoMT for advanced monitoring applications and real-time tracking of patients.

Source: Avasant research, FDA, Avasant-NASSCOM Digital Enterprise Survey; Avasant IoT Service RadarView November-December 2019

Pursue bolt-on deals or partner with start-ups to focus on growing business units

The start-ups in Life sciences domains are focusing on process optimization and next-gen therapeutics.

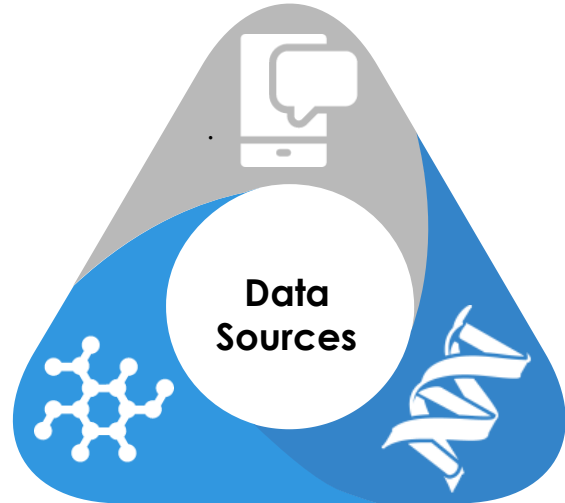
Focus Area	Sample Start-ups	Description
Genomics - Leveraging genome technology and engineering to develop targeted life-saving therapeutics.		Leverages its proprietary GeneWave technology, which delivers high-level gene expressions.
		Utilizes best-in-class genome engineering capabilities to develop targeted life-saving therapeutics.
Oncology - Developing new cancer treatments and diagnostic technologies through increased adoption of next-gen technologies.		Guardant360 is the only biopsy-free tumor sequencing test that tracks tumor genomics in real-time.
		Catalyzes cancer treatment through the development of CAR-T therapy.
Drug discovery - Deploying next-gen therapeutics, including RNA interference, advanced computational algorithms, etc. for drug development		Develops and licenses a range of nanotechnology products and applications.
		Designs and develops immune-based therapies to treat cancer.
Clinical trials - Improving clinical trial, recruitment, enrollment, retention, and design for process optimization and cost containment.		An open-access repository for methods and protocols, giving easy accessibility to investigators.
		A patient recruitment marketplace for clinical trials with a unique business model focused on performance.

While the start-ups are using innovation-led approach and are specializing in niche segments, large life sciences companies can mitigate the threat by augmenting their digital capabilities or partnering with relevant start-ups.

Invest in predictive analytics and AI to optimize drug development and improve care quality

Triangulation of data from various sources...

Real-time data generated by IoT, consumer technologies, and social media



...to develop predictive analytics and AI use cases to optimize drug development and increase focus on patient treatment.

Pharmaceutical companies	<p>Drug Discovery</p> <ul style="list-style-type: none"> Find new compounds that could be potential drugs and predict the performance in testing. Discover drugs that could work together as combination treatment. 	<p>Clinical Trial Design and Optimization</p> <ul style="list-style-type: none"> Patient identification for clinical trial recruitment. Genetic clustering of a customer base into groups based on factors that reflect each individual's chance at responding well to the drug. 	<p>Marketing and Sales</p> <ul style="list-style-type: none"> Analyze sales rates and market conditions to optimize marketing campaigns. Analyze cross-sell sales opportunities from existing customers.
Biotechnology companies	<p>Research and Development</p> <ul style="list-style-type: none"> Identify/analyze patterns in large genetic data sets to understand genetic variation on crucial cellular processes. Predict an individual's probability of developing certain diseases. 	<p>Lab Assistants</p> <ul style="list-style-type: none"> Effectively construct CRISPR* libraries that may be needed for a single experiment or an entire lab. Analyze the data from the experiments in the lab. 	<p>Process Optimization</p> <ul style="list-style-type: none"> Minimize scrap, rework and warranty claims by forecasting and preventing quality issues and avoiding recalls. Improve asset utilization and product quality.
Medical Device companies	<p>Medication Management</p> <ul style="list-style-type: none"> Improve medication adherence, manage medication lists, and avoid adverse drug events. Monitor and prevent medication errors. 	<p>Imaging Analytics</p> <ul style="list-style-type: none"> Provide a screening decision without the need for a clinician to interpret the image or results. Early detection of different diseases. 	<p>Remote Care</p> <ul style="list-style-type: none"> Monitor patients remotely by leveraging IoT. Optimize the treatment process by automating the delivery of treatment using connected mobile apps.

Life sciences companies should start investing in predictive analytics and AI solutions to leverage the data generated at various sources and utilize it for drug discoveries, optimization of processes, and improvement of patient care.

*CRISPR full form - Clustered Regularly Interspaced Short Palindromic Repeats

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