Disruptive technologies - threat or opportunity?

A disease-centric view for the global medical sector

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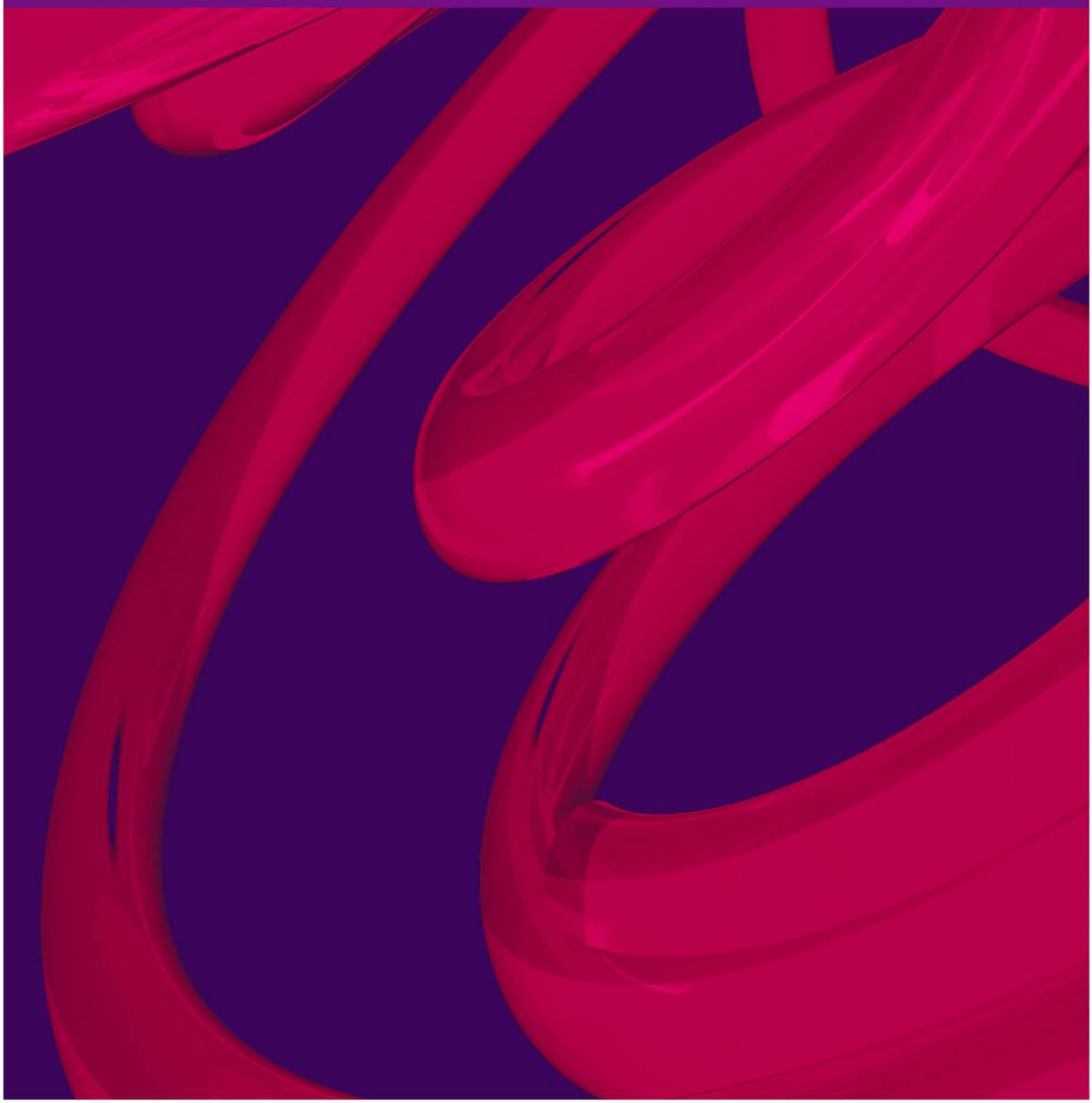

Executive summary

Determining the impact of future technologies is challenging and no more so than in the medical field. Intense research is leading to numerous potential options to diagnose, manage and treat medical conditions. Whilst these approaches are advancing patient care, new, innovative technologies create a high degree of uncertainty in the market - many organisations are finding it increasingly difficult to predict what might happen and when.

New technology which radically changes the way things have been done in the past is commonly referred to as 'disruptive technology'. Whilst disruption has negative connotations, if understood and evaluated early on, such innovations can also provide tremendous breakthrough opportunities to invest in paradigm shifting technology, to drive growth and the establishment a powerful future position.

Disruptive technology is usually defined as that which is significantly cheaper than current and/or is much higher performing and/or has greater functionality and/or is more convenient to use. In the medical context we are talking about technologies that can significantly impact the management of a disease such that new 'standards of care' are introduced along the care pathway. For example, it could be a new therapeutic, a drug delivery method, an early diagnostic or a radical new surgical procedure. These changes have the potential to significantly impact the revenue streams of businesses operating in those markets. The challenge is the complexity of human disease and the multiple ways in which to tackle it, as well as understanding which will be the winning approaches.

But how can an organisation make sense of all the potential medical technology changes over the next 10 years, in order to embrace the right technology for its future growth whilst avoiding disruption?

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Making sense of disruptive technologies

In Sagentia's experience, medical companies typically have a narrow view of the market in which they operate, that is, focused on products and how it improve them, rather than understanding how wider changes to disease management may impact on how, where and if certain products will be used in the future.

To successfully protect against or exploit potential disruptors in the medical industry companies must take a disease-centric view to be aware of and fully understand the effect of emerging technologies across the entire care pathway of a disease. Technologies can then be put into context and further analysed to determine the impact timescale and consequences they may have on a business.

By looking at how a disease is managed overall, rather than focusing on products alone, greater clarity of all the technology opportunities and threats that may be faced in the future can be achieved. This approach is not about how to make an existing surgical tool function better, for example, but understanding how a new technology approach may even totally obviate the need for a certain surgical procedure in the future.

For example, Company A developing a new early diagnostic technique for cancer could impact Company B making surgical devices, but how? If the cancer is caught earlier it may only require minimally invasive surgery which may affect demand for certain surgical instrumentation. Company C developing a cancer drug may further may further erode demand for surgical devices from Company B if the need for surgery is further reduced by early diagnosis making a drug therapy a more appropriate treatment.

Therefore companies need to evaluate all sources of potential impact on the various stages of disease, and then use this intelligence to make an informed decision as to whether to continue with current strategies or investigate new opportunities, a proactive rather than reactive approach

Understanding the potential effect future technologies may have on a disease is complex. It requires meticulous, detailed research by highly skilled people to investigate and uncover emerging technologies, put into context how they might affect a disease, determine the likelihood of impact and whether they are sustainable in the long term.

The disease-centric view

To make sense of emerging technologies and evaluate their potential future impact on the medical industry, Sagentia typically uses a care pathway analysis approach to ensure that the disease is central to the process. This process seeks to identify how emerging technologies could change the way in which diseases will be managed in the future, typically, taking a five to fifteen year view. This in turn enables a comprehensive picture of opportunities and threats to be built, that simply would not have been possible by focusing on products alone.

We start the process by building a comprehensive understanding of the disease and how it is currently managed. This maps current standards of care and considers aspects such as risk factors, methods of prevention, screening, management and treatment.

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Further analysis is then carried out on the care pathway to identify areas of weakness, inadequacies or processes that could be done better. This could include, for example, drug side effects, invasive surgery or long periods of post-surgical therapy.

This enables us to identify trigger points where new technology could potentially be introduced that would disrupt current ways of doing things. This may be a threat or provide a business opportunity.

The next stage is a process we refer to as technology scouting. This is a very broad search to identify emerging technologies that could impact the disease to overcome the identified trigger points.

It is important that this stage is carried out by a team with an in-depth understanding both of the disease and of the emerging technologies. New technologies need to be considered in the context of the disease.

From the technologies gathered and the trigger points identified, scenarios of possible future outcomes are developed. The objective here is to create scenarios that depict ways in which the care pathway could be improved by each emerging technology.

These scenarios can then be analysed in the context of the business. We ask key questions such as: If scenario X happened what would be the impact on the business? What products would not be sold anymore, what would the loss in sales revenue be? Is there a potential upside to our business? From this we can build a complete understanding of the total impact an emerging technology can have on a certain business situation.

The timescale of potential business impact then needs to be ascertained by examining the development status of technologies required to fulfil the relevant future scenarios. In many cases scenarios can have missing pieces of technology (we refer to these as unlocking technology) that are critical to the overall solution.

It is extremely important to consider all the component technologies required to bring about a new scenario in order to judge the timescale of impact. For example, an excellent new drug therapy may require a delivery device to enable its wide spread clinical adoption; therefore commercial success hinges on the development of the delivery device even though the drug has proven clinical efficacy. If the drug delivery device requires a further 5 years of development the new standard of care using the drug / device combination will only be realised once the device is developed. The device ‘unlocks’ the scenario.

The final stage of the process is to bring all the technology-enabled scenarios together to create a future clinical landscape for the disease of interest and plot how this could change over time. By doing this it is possible to determine the order in which change is expected to occur within the care pathway of the disease. It is also possible to assess the impact of different emerging technologies on each other to understand those that are likely to be sustainable and those which will be superseded.

This type of approach is of particular importance when considering investment in a new business area. The first change to occur will not necessarily have the most commercial impact or be sustainable in the long term. This can be a valuable approach to determine if existing investments in a portfolio are wisely cast or if R&D spend is appropriate.

Conclusion

Disease-centric analysis can lead to a clear picture of all relevant technology-driven changes that could occur for a disease, where they reside in the care pathway and the timescale within which the change is likely to occur. Whilst disruption can come from many directions, Sagentia has found that this approach enables a broad and un-blinkered view of the future impact of technology on a disease to be gained and represents a powerful springboard from which long-term strategic decisions can be made.

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