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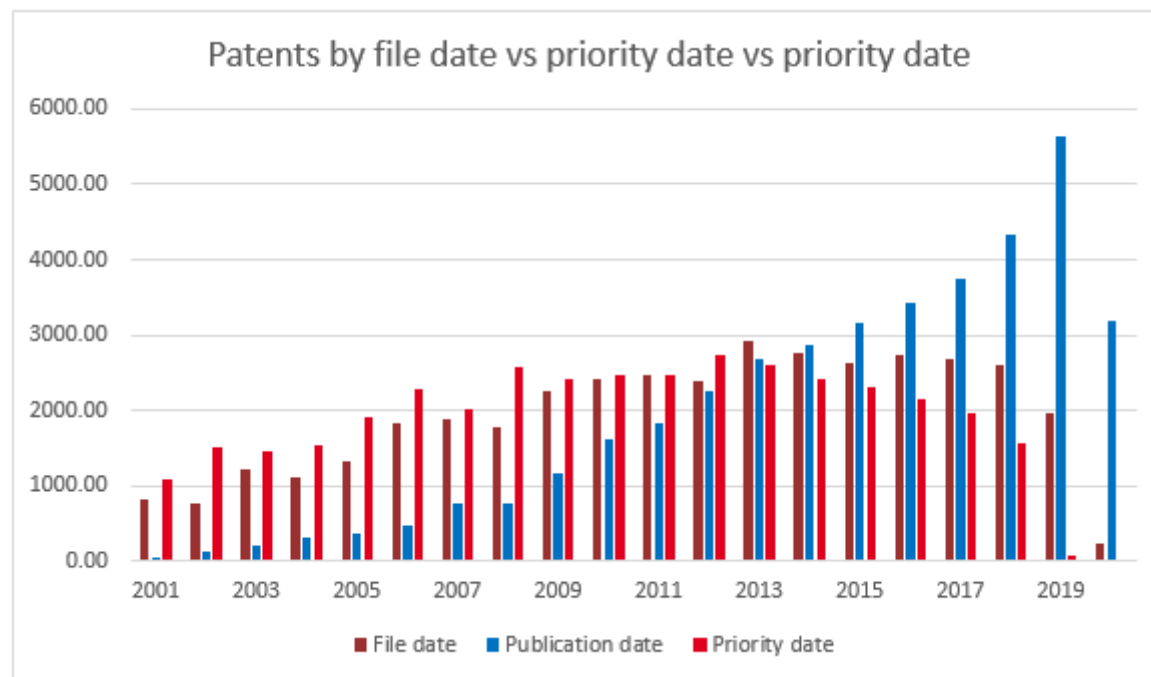
## Medtronic's dual patent strategy helps keep it at the forefront of medtech innovation

Medtronic is a medical device heavyweight. It's been a long-time leader in the field and was [ranked](#) as the second top innovator in medtech in [PatentSight's](#) most recent [Top 100 Digital Innovators](#) report. The company [spends over](#) \$2 billion a year on its R&D and has a robust patent portfolio to show for it.

While Medtronic continues to invest in in-house innovation, the company is also focused on M&A. This two-pronged strategy has allowed it to prioritise critical areas within its own portfolio while allowing it to expand its presence into digitalised technology areas.

### Filing strategy and portfolio development

Medtronic has a global portfolio of 38,944 active patents, according to [Anaqua's AcclaimIP](#). Of these, 27,754 are grants and 11,190 are applications. A breakdown of the patents by file, publication and priority date shows that the portfolio is what you would expect of a well-established business (see graph below). It's level of filing output has remained steady over the past few years, which has created a strong pipeline for grants. Further, its patents – and the technologies they read on – date back to the early 2000s.

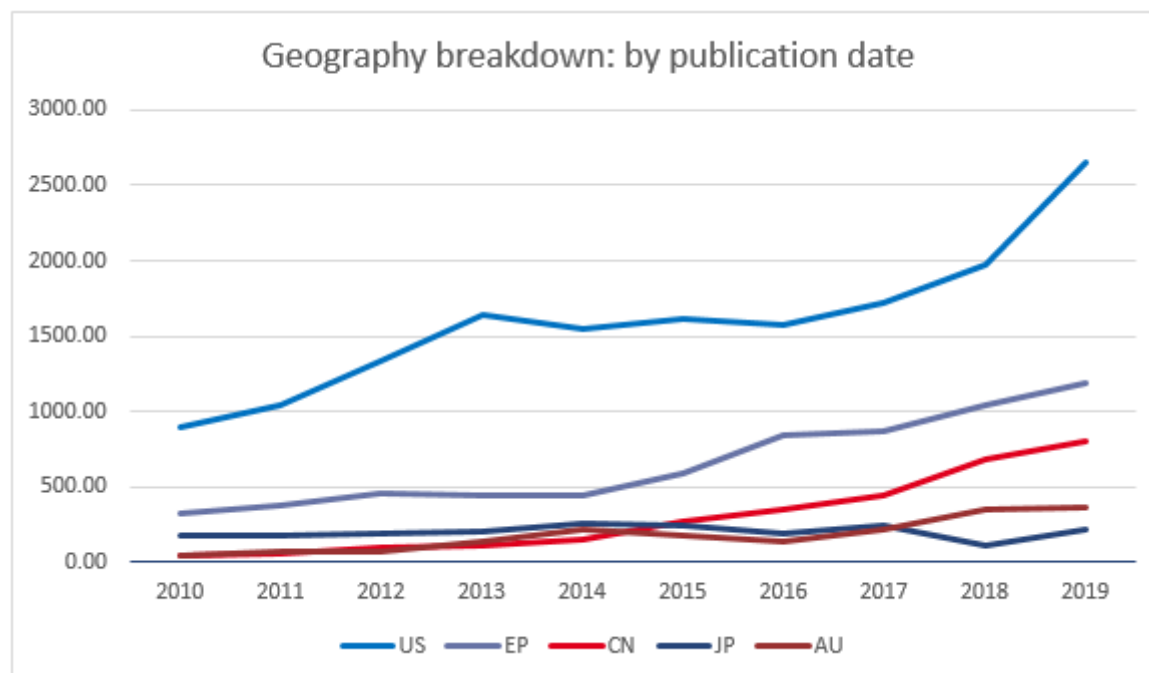


Source: Anaqua's AcclaimIP Analytics Software; Data is accurate as of 29<sup>th</sup> July 2020.

The data for 2019 and 2020 is incomplete given the 18-month lag between when a patent is filed and when it is published.

The US is Medtronic's favoured jurisdiction with 16,273 patents granted there. The company is also an active filer at the EPO, with 5,994 patents. China, Japan and Australia round up the top five most important markets, with 1,888, 1,559, and 1,520 grants respectively.

Analysis of grants and applications when broken down into geography shows that the US, China and EPO have received an increasing number of patent applications each year (see graph below). Activity in the US picked up in earnest after 2016, whereas applications to China have been growing since 2014, with a noticeable uptick in 2017. Paik Saber, vice president and chief IP counsel at Medtronic, said in a [2017 interview](#) that developing a strong patent strategy in China was a key focus for the company going forward.

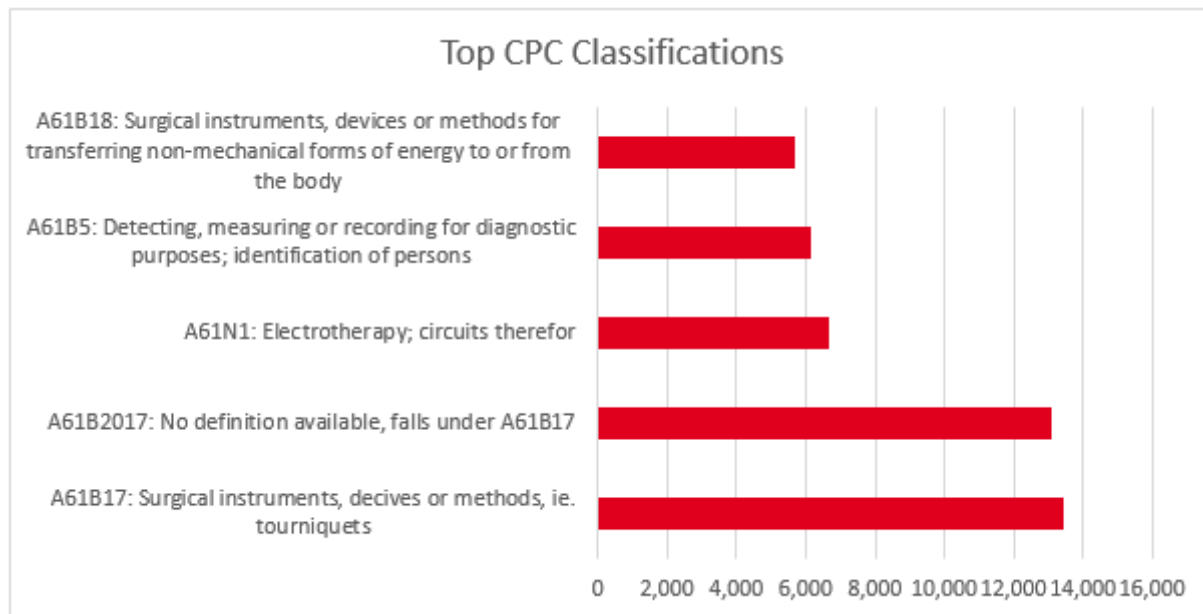




Source: Anaqua's AcclaimIP Analytics Software; Data is accurate as of 29<sup>th</sup> July 2020.  
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### Technology breakdown and competitor analysis

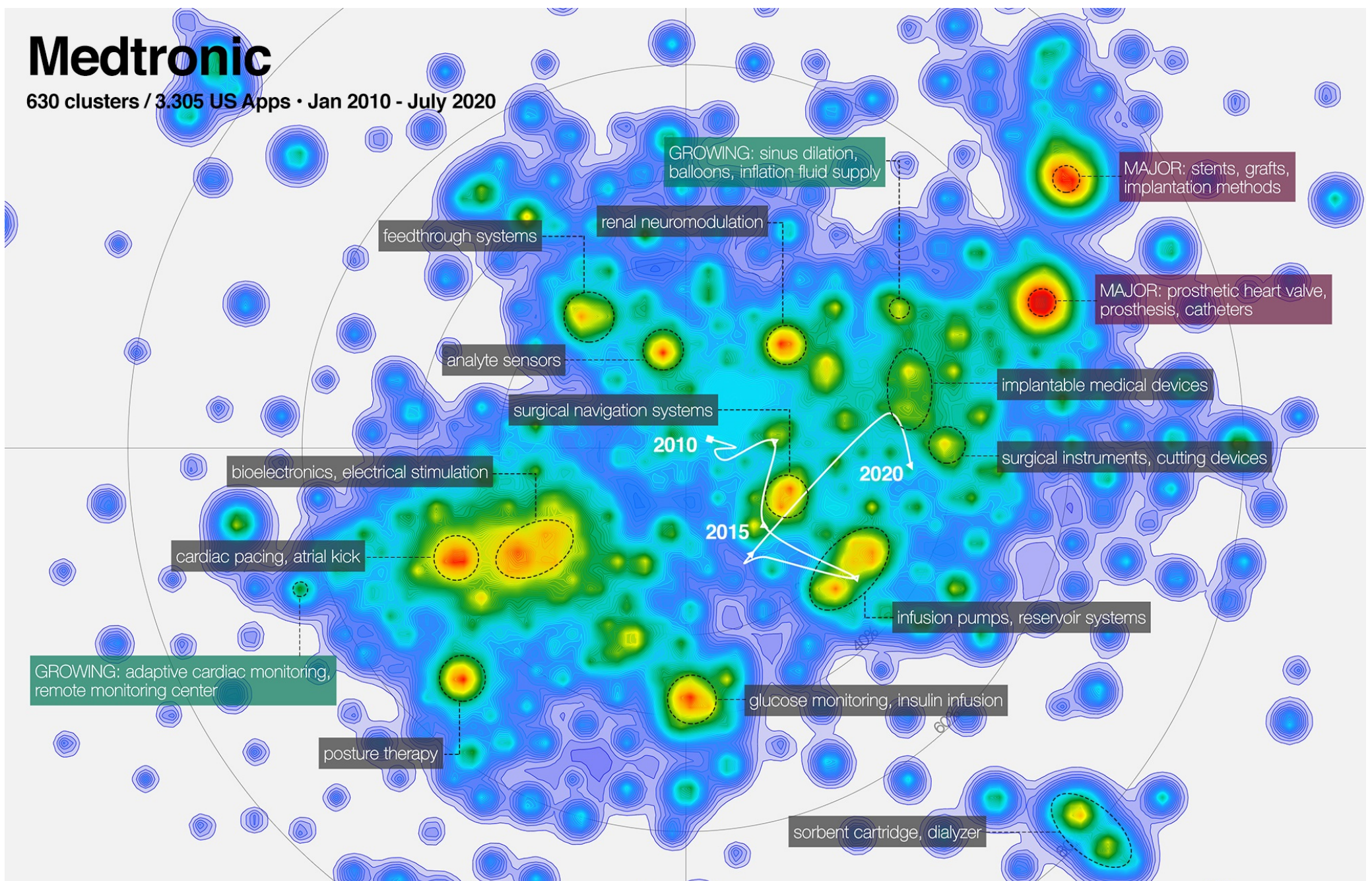
Despite having such a large portfolio, a significant chunk of Medtronic's patents unsurprisingly fall under two CPC codes: A61B17 and A61B2017. Both pertain to surgical instruments, devices or methods (ie. tourniquets) (see graph below).



Source: Anaqua's AcclaimIP Analytics Software; Data is accurate as of 29<sup>th</sup> July 2020.

Analysis conducted by [Valuenex](#), looking specifically at patents where Medtronic is listed as the original assignee, gives insight into the portfolio's organic growth over the years. The image below shows that stents, grafts and implantation methods, as well as prosthetic heart valves, prosthesis and catheters, are major areas of development. Further, adaptive cardiac monitoring, remote monitoring centre, sinus dilation, balloons and inflation fluid supply are growing technology areas.

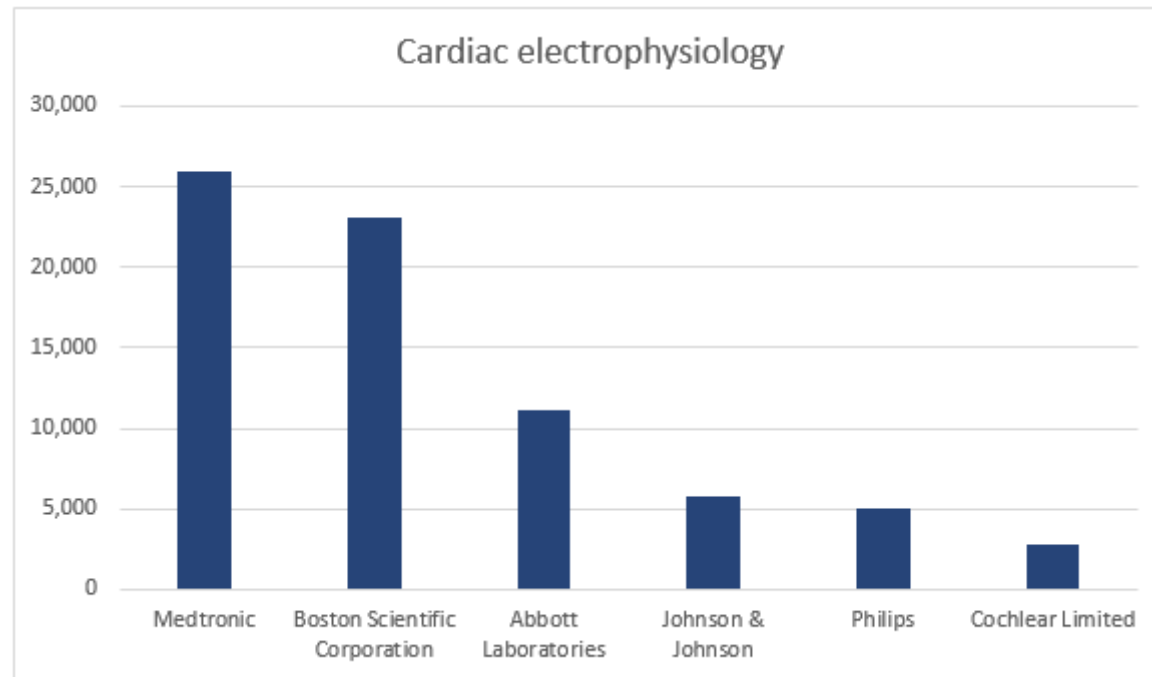
From this R&D landscape, we can also see that the trend line, or area of focus, moves significantly from surgical navigation systems in 2010 to surgical instruments and cutting devices in 2020.



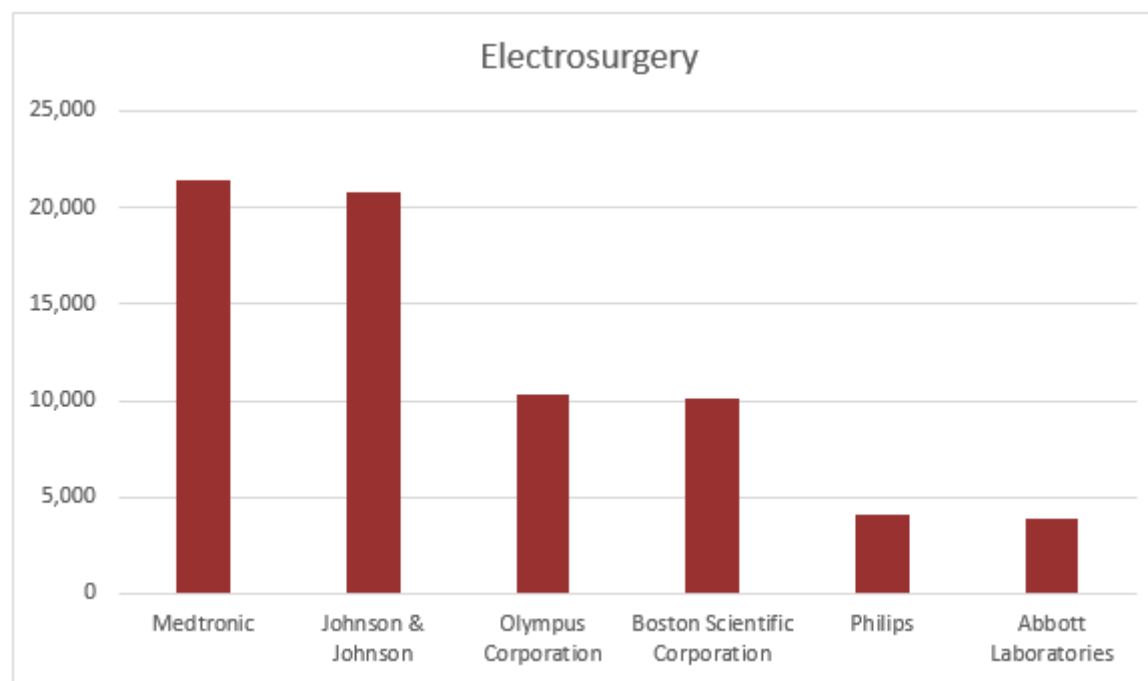
Source: VALUENEX; see full size image [here](#)

Sumair Riyaz and Janani J, lead business development and analyst at [Dolcera](#), conducted additional research based on published patent applications to understand Medtronic's core technology fields and how the company stacks up to others in the market.

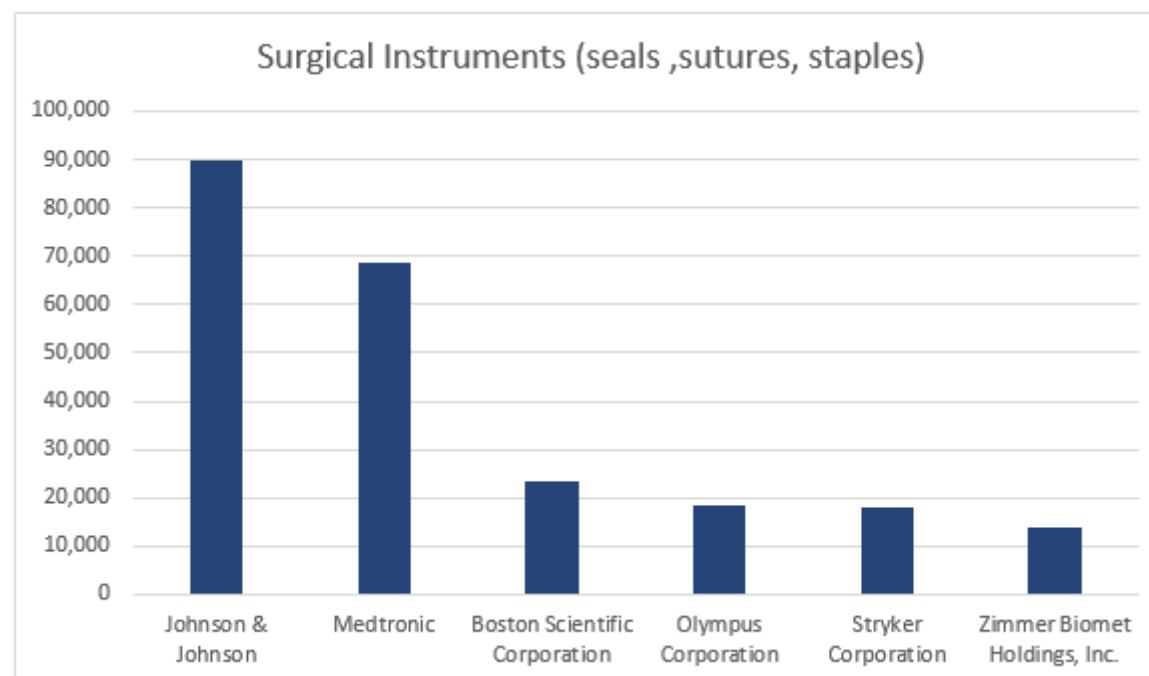
The portfolio is concentrated on four main areas: cardiac electrophysiology, electrosurgery, surgical instruments and minimally invasive surgery. Medtronic is the industry leader in cardiac electrophysiology and electrosurgery, but is led by Johnson & Johnson in surgical instruments and minimally invasive surgeries (including robotic surgical equipment) (see graphs below).



Source: Dolcera PCS

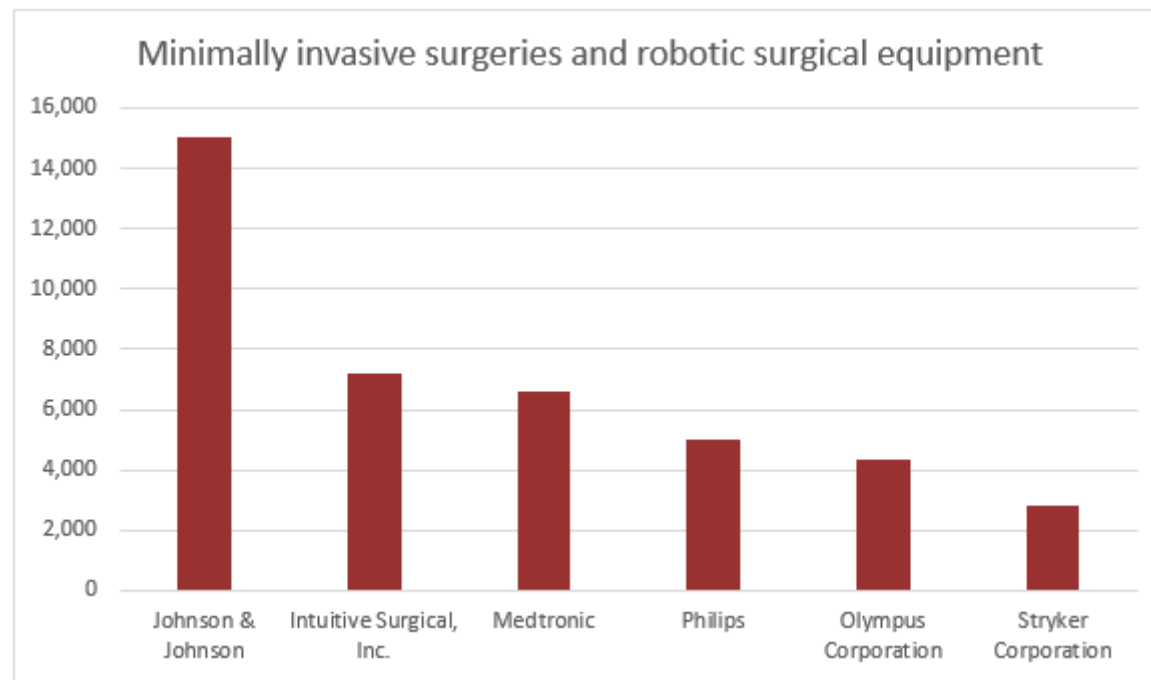


Source: Dolcera PCS



Source: Dolcera PCS





Source: Dolcera PCS

### Inorganic portfolio building

Medtronic has two main options for boosting its portfolio: buying up assets on the secondary market or targeting smaller players for strategic purchases. While the company has carried out specific patent transactions, acquisitions are the clear priority when it comes to expanding into new technology areas.

Medtronic has acquired 91 assets across 10 patent transactions since 2015, according to analysis conducted by [Richardson Oliver Insights](#) (ROI) (see table below). The bulk of patents transferred to it came from BioControl, which is an Israeli medical device company into which Medtronic [invested](#) \$70 million in 2010. The next largest transaction, of five assets, involved the American manufacturing company Jabil. There is a further patent transferred by Nypro, which is now known as Jabil Healthcare. Another noteworthy assignment was from Alnylam Pharmaceuticals. The pair have [collaborated](#) since 2005 as part of an agreement to develop therapies to treat neurodegenerative disorders.

Medtronic has recorded outbound assignments - but not many. It has transferred a total of 17 patents in four deals since 2015.

### Inbound transactions since 2015

Prior owner	No. of assets
BIOCONTROL MEDICAL (B.C.M.) LTD	71
JABIL DESIGN SERVICES	5
ALNYLAM PHARMACEUTICALS, INC.	4
PAIEON, INC.	3
ARSENAL AAA, LLC	3
NYPRO, INC.	1
LUMBRERA, LLC	1
L&T TECHNOLOGY SERVICES LIMITED	1
KONINKLIJKE PHILIPS NV	1
9764135 CANADA INC.	1
Total	91

Source: ROI

Medtech is a leading area in the life sciences sector, with growth driven by high investment levels and M&A. The world's top corporations have been quick to snap up medtech start-ups, and Medtronic is no exception. While the company is streamlining its R&D approach to focus on specific areas of its portfolio, it is using acquisitions to boost its presence in high-growth areas such as robotics, automation and AI.

Medtronic has completed 63 acquisitions and 64 investments to date, according to [Crunchbase](#). Its last big-ticket deal took place in 2015 with [the purchase](#) of Covidien for \$42.9 billion, and it acquired another eight companies that year. Covidien was the company's last major acquisition, but in a 2018 interview Medtronic CEO Omar Ishrak [hinted](#) that deals would start flowing again. And in that year Medtronic agreed to buy Mazor Robotics for \$1.6 billion.

Thus far the company has kept up its deal-making momentum. It [purchased](#) Digital Surgery, a British surgical AI company, in February, and a French implant tech company [called Medicea](#) in July. Medtronic also [made a bid](#) for medical device maker Intersect earlier this month.

While the pace of M&A within medical technology has dropped during the coronavirus crisis, analysts are now [predicting](#) that the industry's major players will embark on a consolidation campaign. Smaller businesses have been devastated by the lockdowns designed to combat the pandemic and this has created the opportunity for big players with healthy balance sheets to strengthen their market positions. Medtronic, as well as Johnson & Johnson, Abbot Laboratories and Baxter Laboratories, has been flagged as potential buyers.

***IAM says:***

*Medtronic's two-pronged approach to innovation has allowed it to expand into high-growth technology areas while giving it the flexibility to focus on critical areas within its own portfolio. It's a powerful strategy and we will probably see more deals in the coming months as the company takes advantage of the current situation.*

*One caveat, though: as the medtech industry becomes increasingly digitalised Medtronic will be competing more and more with technology companies. Further, it will be potentially [at risk](#) of becoming a litigation target. The company is no stranger to patent suits, having been involved in 57 cases since 1st January 2009, according to data from [Lex Machina](#). It's [preference](#) though has always been for litigation to be a last resort. But regardless of how the industry develops, Medtronic is in a strong place to face whatever challenges lie ahead.*