

Chasing change: Innovation and patent activity during COVID-19

**A report on the pandemic's impact on the global
R&D community and innovation lifecycle**



Executive summary

Almost half of senior decision makers (49%) said COVID-19 has disrupted their innovation strategy, compared to less than a third (31%) of non-executives.

In just a few short months, COVID-19 swept through the world. While many aspects of everyday life may have altered as the pandemic gripped the globe, society at large has been and remains remarkably resilient.

The world around us has changed – for the short term in some ways, but with undeniable long-term ramifications. To understand the impact of COVID-19 on the world's

innovators and measure sentiment, we asked organizations from a cross-section of industries globally about how the pandemic has affected their organizations' innovation strategies and the critical role of the IP professional.

We are pleased to share this information with the global innovation community who help the world create, protect and advance innovation in the most unpredictable of times.

Author biographies



Vasheharan Kanesarajah
Head of Strategic
Development, IP Group

Vasheharan Kanesarajah is a senior member of the strategy team within the Intellectual Property group of Clarivate, and plays a key role in the design and execution of the organization's market-focused strategy. He is an experienced patent and technology analyst and has previously managed the European patent analytics practice and was the principal consultant for Asia.



Ed White
Head of IP Analytics

Ed White is Head of IP Analytics at Clarivate. He joined Derwent in 2001 as graduate indexer and abstractor in the team creating the Derwent World Patents Index. In 2005 he moved to the then-emerging field of professional patent analysis, designing and fostering many of the patent metrics and visual styles in use today. Ed has a degree in Electronic Engineering from the University of Nottingham.

Contents

04	Introduction
05	Innovating in a crisis
08	Patent research activity holds up
09	Contrasting views between senior decision makers and non-executives
13	The regional perspective
15	Conclusion
15	Survey methodology
17	References

Introduction

1796, the first successful vaccine was introduced by Edward Jenner.

1917, the world's first blood bank was built.¹

1930, the patent for the turbo jet engine was submitted.²

2007 the first retail DNA test was launched.

These innovations were created in times of crisis and are testament to human ingenuity despite difficult circumstances.

The COVID-19 pandemic is undoubtedly one such difficult circumstance. COVID-19 has changed the way we live, work, run businesses and government. Countries have shut down, many closing their borders and imposing stay at home measures in an effort to contain the virus. Businesses, educational institutions and society at large have scrambled to adjust and function. The economic and social damages are expected to be significant. The OECD warned that global economic output is likely to drop at least 6%³ this year, even more if a second COVID-19 wave happens. China's GDP contracted 6.8% in the first quarter of this year.⁴ Up to a third of jobs in the United States are at risk.⁵ Socially, a recent survey indicated the number of people in Europe who suffer from loneliness tripled⁶ as a result of lockdown and social distancing measures, and the U.N. warns of a forthcoming mental health crisis⁷ due to ongoing trauma exposure, isolation, fear and economic hardship.

Extraordinary times demand extraordinary actions. On a macro-level, governments around the world have unveiled huge stimulus packages aimed to shore up economies. China launched an RMB 6.1 trillion stimulus package;⁸ the United States announced a USD \$2 trillion financial rescue bill, with a second stimulus package currently in discussion. Germany's €130 billion financial stimulus not only provides support for the country's worst hit sectors, businesses, families and citizens, but also increased government investments in climate-friendly industries and innovations. From a patent and trademark perspective, USPTO has provided relief to certain patent and trademark-related fees and extensions to deadlines. For example, it has permitted a delay in filing or payment if the persons associated with the filing or fee were personally affected by the COVID-19 outbreak that caused the resulting delay in filing or payment.⁹ The USPTO has also launched an online marketplace to bring together patent holders of COVID-19 related inventions with potential licensees, helping to accelerate the arrival of critical inventions to the market.

In times of crisis, 'buckling down and keeping the lights on' (keeping the business running but at minimum investment) might appear to be the easier option for businesses. However, it is often in dire circumstances where ingenuity and innovation are unlocked, inspired, made necessary or even accelerated. Examples abound of innovation during the current crisis.

- Breweries and distilleries have adapted production facilities to produce hand sanitizers.
- Manufacturers have diverted resources to manufacture personal protective equipment for healthcare workers, including an engineering start-up in Italy that created valves used in ventilators through 3D printing.¹⁰
- COVID-19 diagnostic test kits have been developed quickly; for example, Bosch developed its rapid COVID-19 test in less than six weeks.¹¹

Not only is change a constant, the global pandemic illustrates the importance of innovation in responding to change and adversity.

In times of crisis, 'buckling down and keeping the lights on' (keeping the business running but at minimum investment) might appear to be the easier option for businesses.

Innovation in a time of crisis

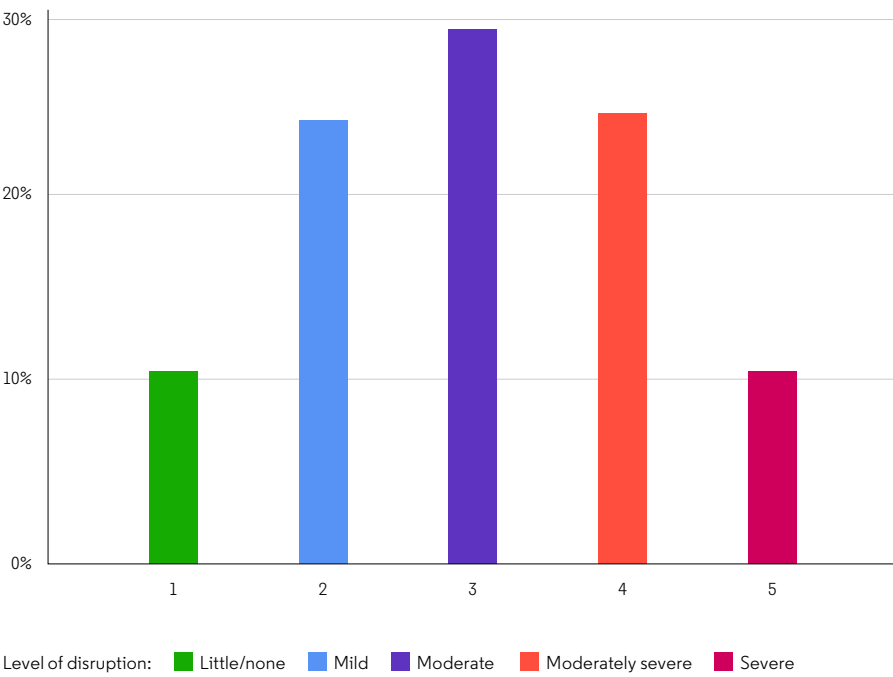
The varying levels of lockdown and quarantine measures have clearly accelerated the move towards digitization, cited as the most significant change to innovation activity by over half (52%) of respondents.

We put attitudes toward innovation and patent research under the microscope and interviewed the patent research and R&D community around the world and across industries. More details about the survey methodology are outlined in the Methodology section.

First, we asked if COVID-19 has disrupted organizations' innovation strategy. We found an even split between organizations that have experienced disruption compared to those that have not. Crisis or not, the long-term commitment to innovation is unwavering.

On a scale of one (little or no disruption) to five (significant disruption), to what degree has your organization's innovation strategy been disrupted by the effects of COVID-19?

Figure 1: Degree of disruption to organizations' innovation strategy by the effects of COVID-19, on a scale of one (little or no disruption) to five (significant disruption).



Source: Clarivate survey of 247 organizations worldwide

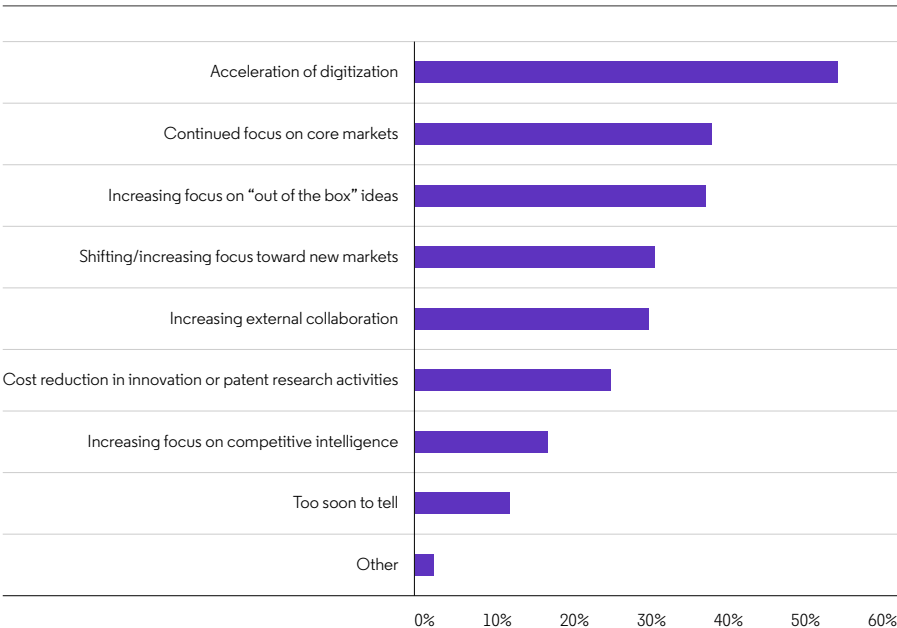
Almost half of organizations surveyed acknowledged that their innovation activity has changed in response to COVID-19. The varying levels of lockdown and quarantine measures have clearly accelerated the move towards digitization, cited as the most significant change to innovation activity by over half

(52%) of respondents. Digitization has and continues to change the world. It gives us the ability to work how and when we want to. It fosters collaboration. Even countries such as Japan that prize onsite collaboration and office presence are accelerating digitization efforts and evolving conventional business models.

Is your organization’s innovation activity changing in response to COVID-19?

Close to a quarter (23%) of companies surveyed noted more of their innovations being re-purposed in markets beyond their primary industry.

Figure 2: How have organizations’ innovation activity changed?



Source: Clarivate survey of 247 organizations worldwide

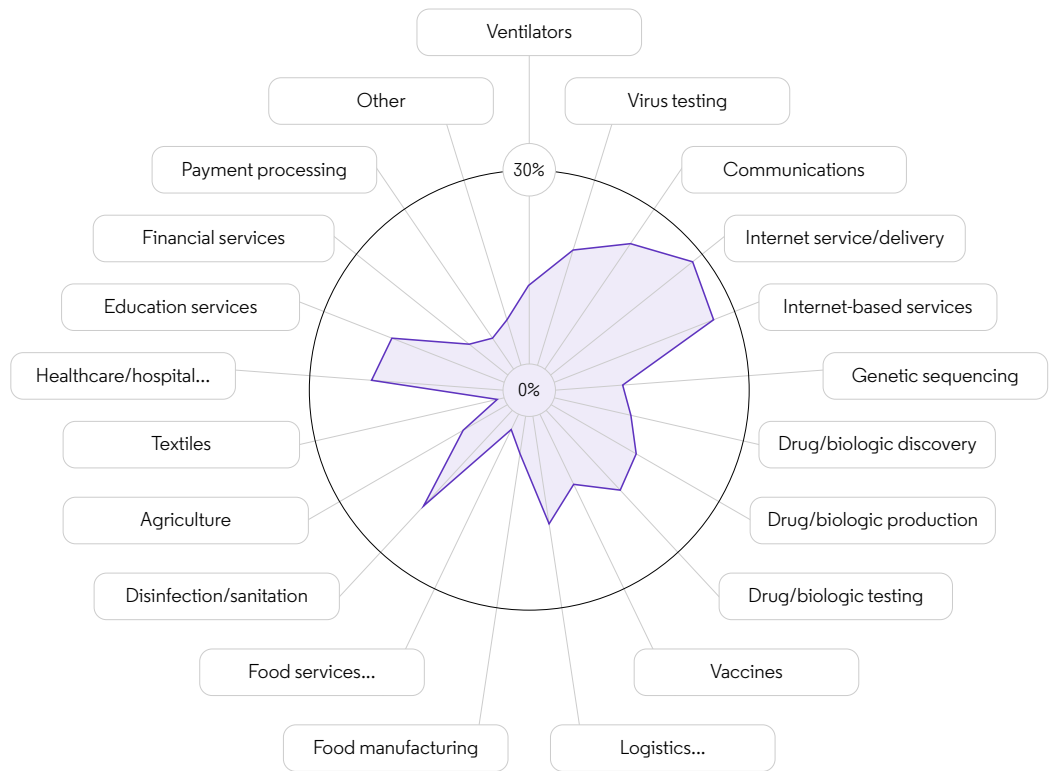
Although 37% of businesses underlined the importance of ‘keeping the lights on’ by focusing innovation activity on core markets, a similar proportion (36%) embraced the opportunity to pursue out of the box ideas. From the discovery of penicillin’s antibiotic qualities and its mass production during World War II,¹² to the turning point in Alibaba’s growth during the SARs pandemic in the early 2000s, history tells us that moments of adversity can lead to transformational innovation. In the midst of a global pandemic, we are witnessing a new wave of innovation including 3D printed hands-free door openers and basic ventilators.¹⁴

Our data also revealed that innovation is crossing boundaries. Close to a quarter (23%) of companies surveyed noted more of their innovations being re-purposed in markets beyond their primary industry. The top new markets are internet services, logistics, communications, disinfection/ sanitation products and healthcare/ hospital services. These findings mirror the skyrocketing demand for healthcare services as well as solutions that enable remote working and learning. This demand will remain high even as the world emerges from confinement measures.



Compared to a year ago, have you noticed an increase in your innovations being repurposed in markets other than the one you currently operate?

Figure 3: New markets that primary innovations have been re-purposed for.



Source: Clarivate survey of 247 organizations worldwide

The global innovation landscape is evolving and moving at a pace never seen before. And nowhere is the urgency to innovate more apparent than the global effort to discover a vaccine.

With COVID-19 exacting a tremendous human and economic toll across the world, there is pressure to deliver a vaccine in less than 18 months. Pharmaceutical companies, R&D communities, health authorities and regulatory bodies are working around the clock, often collaboratively, to find answers in record-breaking time.

With COVID-19 exacting a tremendous human and economic toll across the world, there is pressure to deliver a vaccine in less than 18 months.

Patent research activity holds up

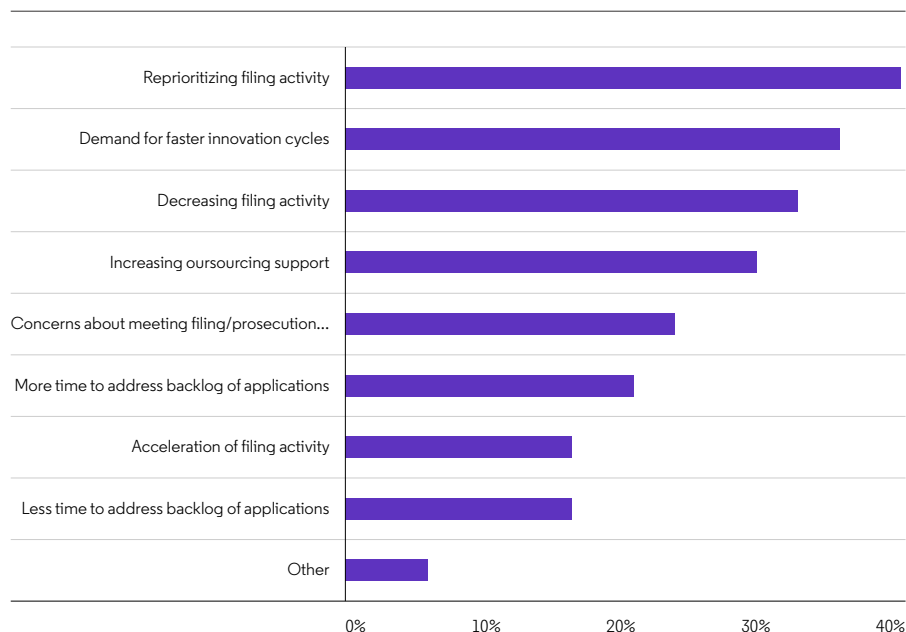
Additional patent workload has meant that almost a third have turned to external providers for support.

Launched earlier this year, our [Derwent Top 100 Global Innovators 2020 report](#)¹⁵ revealed an acceleration of new and innovative ideas. This is compounded by the fragmentation of the innovation ecosystem, with smaller organizations increasing their market share of inventions. Six years ago, the top 1,000 entities¹⁶ held over a quarter of all inventions. Today, their share has dropped to 18%. This means that organizations, large or small, face many challenges. They must look beyond their traditional set of competitors. They must consider the impact of external and macro factors. They must be ready to make confident, strategic, innovation and business decisions despite a volatile environment.

Patent information can be a valuable form of business intelligence and support not just innovation but commercial decision making. 73% of innovation leaders said they glean insight from multiple data sources and use advanced analytics to distil that data.¹⁷ With upheaval in the innovation ecosystem and the global environment, organizations are experiencing change in their patent research activity. A quarter (26%) of our survey respondents acknowledged their patent research activity has changed. The primary drivers are the reprioritization of filing activity (40%) and pressures from faster, shorter innovation cycles (36%). Additional patent workload has meant that almost a third have turned to external providers for support.

Is your patent research and/or innovation activity changing as a result of your organization's response to COVID-19?

Figure 4: How organizations' patent research activity has changed.



Source: Clarivate survey of 247 organizations worldwide

External partners add scale and scope to in-house patent information teams. They help organizations build virtual patent research and analytics capabilities and eliminate coverage gaps. It is useful for organizations to develop and maintain a relationship with a trusted IP services partner so that they can augment internal resources and scale up when needed effectively.

Despite COVID-19's disruption to the innovation lifecycle, organizations have shown resilience. While remote working has naturally resulted in the drastic reduction and in some environments, complete elimination of in-person interaction, over half (52%) of those surveyed felt that they were more or equally collaborative.

Contrasting views between senior decision makers and non-executives

Senior decision makers recognize the disruption to their business plans and strategies.

The COVID-19 situation is evolving constantly, creating greater demands and new priorities on leaders who must continually balance urgency with careful planning. With a broader range of information at their disposal than their employees, senior decision makers are better able to see the impact a crisis has on both their operational activities and strategic imperatives such as innovation.

According to our data, almost half of senior decision makers (49%) said COVID-19 has disrupted their

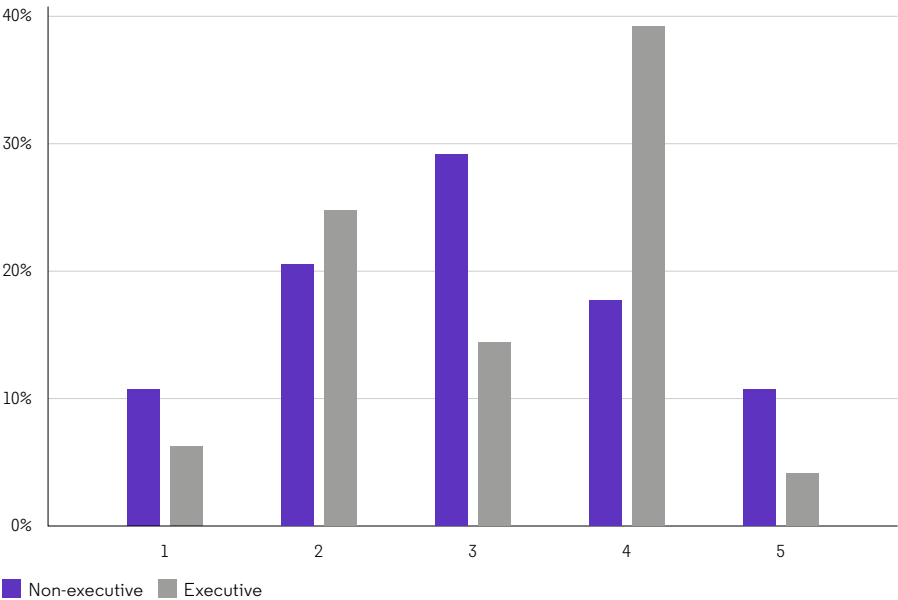
innovation strategy, compared to less than a third (31%) of non-executives. Senior decision makers recognize the disruption to their business plans and strategies. Bearing the responsibility of a longer-term, broader view of the organization, they must adapt with resolve to evolving circumstances, re-define priorities and develop new plans¹⁸ including their innovation strategy. Their perspective serves as a bellwether of organizations' attitude and approach to strategy during the pandemic.



Disruption to organizations' innovation strategy: differing views of senior decision makers and non-executives.

A much higher proportion of senior decision makers (70%) cited the acceleration of digitization as the key impetus to changes in innovation activity.

Figure 5: Degree of disruption to organizations' innovation strategy by the effects of COVID-19, on a scale of one (little or no disruption) to five (significant disruption).



Source: Clarivate survey of 247 organizations worldwide

Our survey uncovered further differences in sentiment between senior decision makers and their employees. A much higher proportion of senior decision makers (70%) cited the acceleration of digitization as the key impetus to changes in innovation activity, compared to less than half (48%) of non-executives. Senior decision makers also placed greater emphasis on out of the box ideas, as 58% cited its importance. The impetus and will to change was not without its challenges, however. Over 60% of employees and 50% of executive respondents felt lack of in person meetings had a negative impact.

The health crisis we face presents an opportunity to experiment, expand options and do things differently. Examples of innovative leadership include Twitter and Square CEO Jack Dorsey's announcement to offer employees the opportunity to work from home forever even after the pandemic, Dyson investing \$25 million

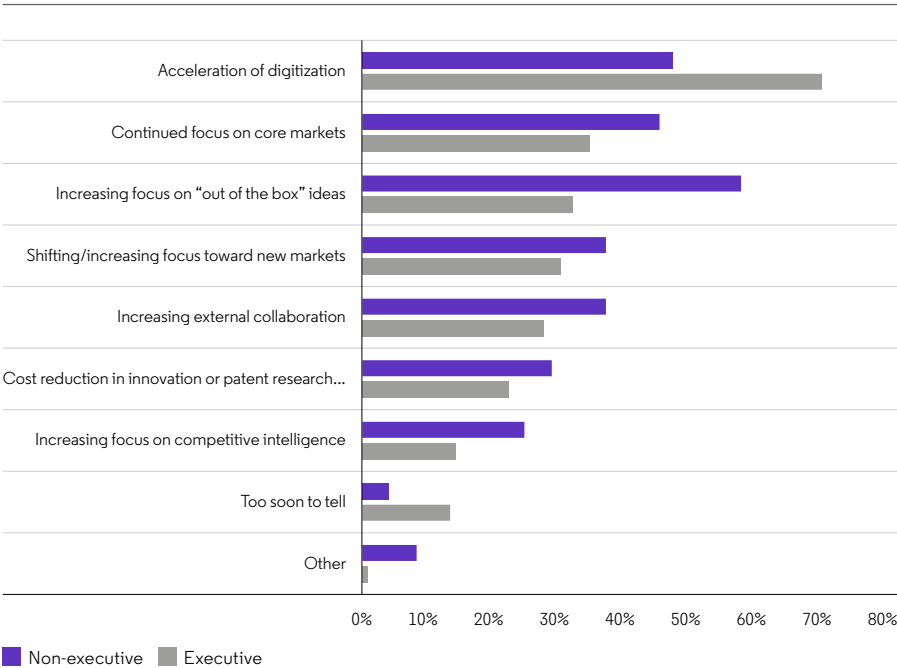
to develop a prototype ventilator in less than two weeks,¹⁹ and New Zealand prime minister Jacinda Ardern's decisive yet empathetic approach to the crisis. It is indeed encouraging to see leaders come to the fore during one of the largest global public health crises in recent times.

Over 60% of employees and 50% of executive respondents felt lack of in person meetings had a negative impact.

Disruption to organizations’ innovation activity: differing views of senior decision makers and non-executives.

The difference in sentiment between senior decision makers and the rest of their organization can be due to differing priorities, objectives and competencies.

Figure 6: How have organizations’ innovation activity changed.



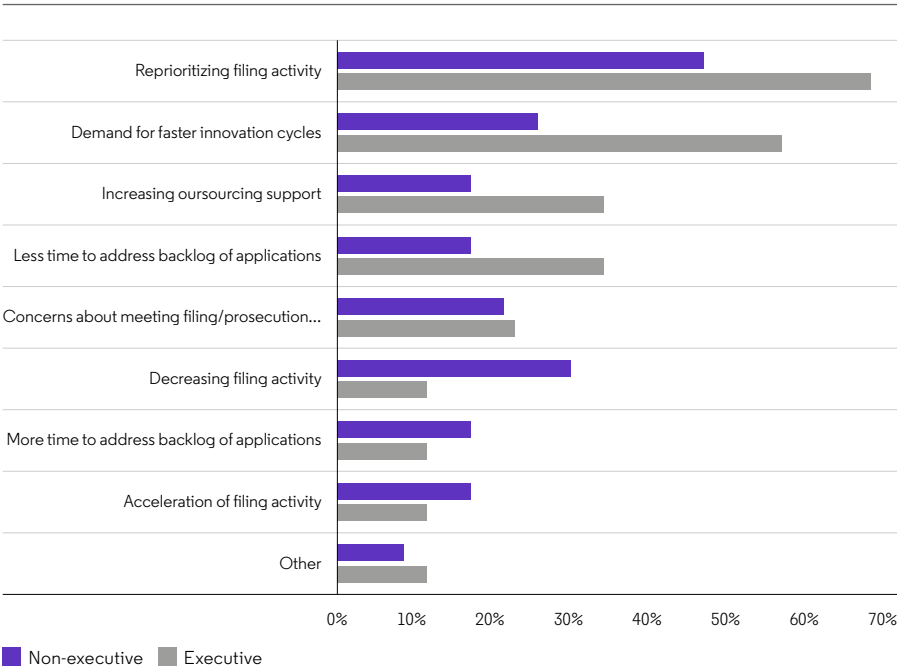
Source: Clarivate survey of 247 organizations worldwide

The difference in sentiment between senior decision makers²⁰ and the rest of their organization can be due to differing priorities, objectives and competencies. For example, patent researchers possess deep legal and technical expertise to expertly analyze complex patent intelligence outputs, while business leaders must stay focused on decisions and strategy that align with the interests of the boardroom.

While reprioritization of filing activity is the most significant change noted by senior decision makers and information professionals,²¹ more than half of the former also see the demand for swifter innovation lifecycles driving patent activity. Information professionals noted the immediate impact to their workload and filing activity. Senior decision makers looked holistically at why and what drove this change.

Changes to organizations’ patent activity: differing views of senior decision makers and information professionals.

Figure 7: Change in organizations’ patent activity.



Source: Clarivate survey of 247 organizations worldwide

In times of adversity, people turn to their senior decision makers, their leaders to navigate uncharted waters.

Leaders have to embrace reality but avoid impulsive reactions, plan but be ready to adapt and try new ideas.²²



The regional perspective

While regions reported similar levels of disruption to innovation strategy, there is a variance between regions in how their innovation activity has changed.

As a region, Asia Pacific (APAC) was earliest hit by COVID-19. APAC nations were also some of the first to ease lockdown measures, with countries like Vietnam lifting its lockdown on April 22. Some parts of Europe, Middle East and Africa (EMEA), followed by North America (NA) have only begun to loosen measures from mid-May. Our survey revealed both subtle and glaring differences, possibly due to the regions being at different stages of the pandemic.

While regions reported similar levels of disruption to innovation strategy, there is a variance between regions in how their innovation activity has changed. 61% of EMEA organizations focused on unconventional and out

of the box innovation whereas APAC and NA see digitization as the biggest driver. NA, and increasingly APAC, are acknowledged as R&D powerhouses and key contributors to the global innovation ecosystem. EMEA is an innovation force to be reckoned with too, as its presence in the top 10 ranked economies in World Intellectual Property Organization's (WIPO) Global Innovation Index (GII) shows. Eight out of the top 10 in the GI are from EMEA.²³

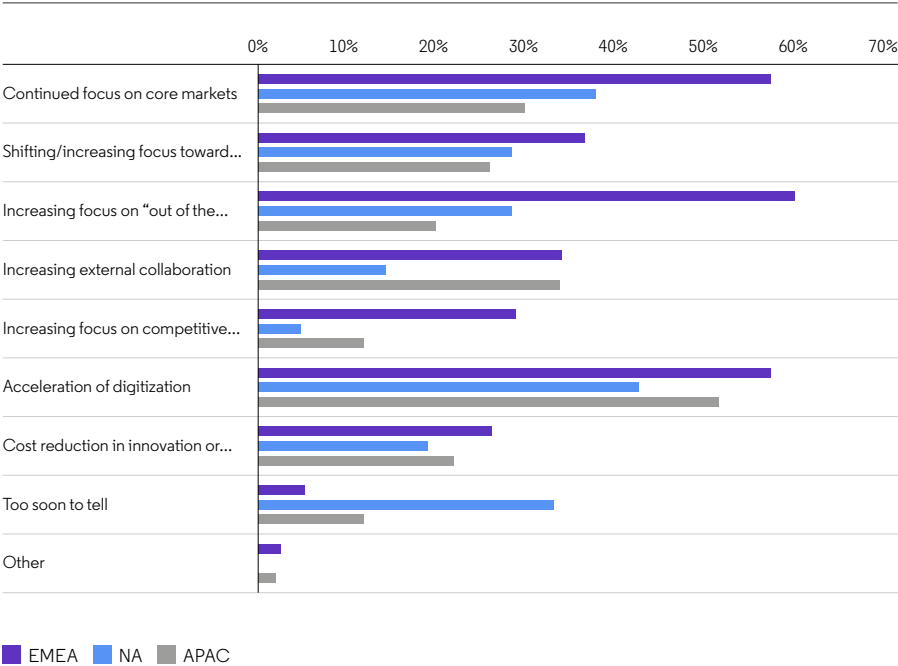
When it comes to patent activity, NA organizations are markedly different from their APAC and EMEA counterparts. Almost twice as many NA organizations turned to external support in response to changing patent research activity compared to their EMEA counterparts.

Almost twice as many North American organizations turned to external support in response to changing patent research activity compared to their EMEA counterparts.



Organizations’ changing innovation activity by region.

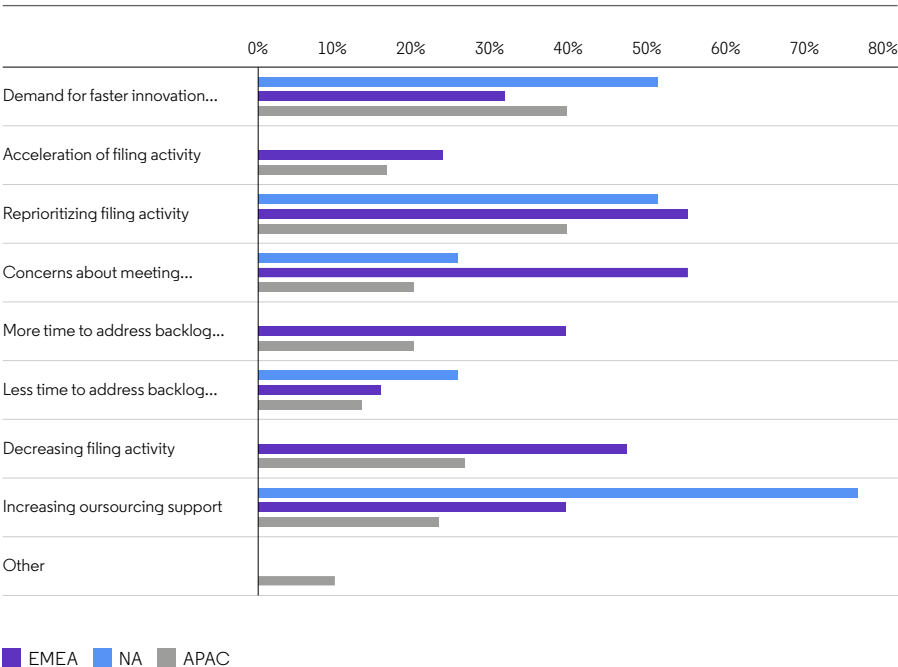
Figure 8: Change in organizations’ innovation activity by region.



Source: Clarivate survey of 247 organizations worldwide

Organizations’ changing patent activity by region. Twice as many NA organizations increased outsourcing support compared to EMEA organizations.

Figure 9: Change in organizations’ patent activity by region.



Source: Clarivate survey of 247 organizations worldwide

Conclusion

Time and again, innovation has shown through in moments of crisis. The pace of clinical trials for COVID-19 vaccine is accelerating.

For many around the world, COVID-19 has turned life, business and government upside down. As society grapples with living during a global pandemic, innovation has and will continue to help us through to the other side.

Our research demonstrates the pandemic's impact on the global innovation lifecycle and community. Organizations have experienced disruption to their innovation strategy and activity, and patent research but their commitment to innovation is unwavering. 52% reported the acceleration of digitization as the most significant change to their innovation activity. Despite today's challenging environment, organizations are giving almost equal attention to core markets and the pursuit of game-changing ideas.

We also uncovered the contrasting perspectives of senior decision makers and the rest of their organization. Senior decision makers looked holistically at the forces driving changes in innovation and patent research activities, while the rest of the organization noted the immediate impact to their workload.

There were regional differences too. EMEA organizations reported a greater focus on out of the box innovation compared to other regions. Almost twice as many NA organizations turned to external partners to support their changing patent activity as their EMEA counterparts.

Time and again, innovation has shown through in moments of crisis. The pace of clinical trials for COVID-19 vaccine is accelerating. World leaders have pledged more than €7bn to research COVID-19 vaccines and therapies. To encourage development of products or processes to combat the novel virus, many patent offices around the world including the United States Patent and Trademark Offices (USPTO) have put in place pilot programs²⁴ to prioritize COVID-19 related applications.

Ingenuity is needed more than ever. Speed is needed more than ever. At Clarivate, we operate at the heart of the innovation lifecycle. We champion risk-takers and trailblazers and help them bring life-changing innovations to market faster. Even in the most difficult of times.

Survey methodology

This report represents survey responses from 247 organizations, including small entities to enterprise organizations across a cross section of industries on the innovation and patent research challenges they face in the COVID-19 crisis. Survey respondents were involved in or had insight to some or all of their organization's innovation

lifecycle, from information and R&D professionals to senior decision makers. Online interviews were carried out in April and May 2020.

Latin American organizations made up a small number of total respondents, 16 in total. To avoid skew to the results, they were excluded from this report.

Countries/regions represented	
Japan	95
United States	44
India	40
Taiwan	16
China, Mainland	16
United Kingdom	12
Germany	11
South Korea	8
Singapore	8
France	5
Italy	5
Australia	3
Algeria	2
Malaysia	2
Netherlands	2
Russia	2
Serbia	2
Ukraine	2
Others	24

Industries represented	
Manufacturing	45
Chemicals	42
IP Services – Consulting	29
Academic	21
Engineering	20
Biotechnology/Life Sciences	16
Automotive	14
Technology	12

Professional Services	10
Pharmaceuticals	9
Health Care Providers & Services	8
Non Profit	8
Patent Library/Office	8
E-Commerce/Internet/Computing	6
Government	6
Food Products	5
Media/Publishing	5
Consumer Products or Services	4
Finance/Banking/Accounting/Vent...	4
Telecommunication Services	4
Health Care Equipment & Supplies	3
Information broker	3
Construction	2
Oil, Gas & Consumable Fuels	2
Others	12

Survey respondents' demographic	
Patent Engineer	23
Research and Development	22
CEO/CTO/COO/CSO	17
Analyst/Researcher (Corporate)	15
Engineer	14
Consultant	13
Patent Researcher	13
Academic Researcher	12
Research Administration	12
Information Professional	11
Technical Specialist	11
Patent Administrator	10
Head of Patents	9

Product Developer	6
Research Scientist	6
Head of IP CIPO	5
Marketing Professional	5
Partner	5
Patent Attorney	5
Policy Maker/Policy Director	5
Administrator	4
Business Development and Licensing	4
Editor	4
Attorney/Lawyer	3
Banker	3
Biologist	3
Head of Strategy	3
IT Manager	3
Legal Counsel	3
Program Manager	3
Sourcing & Manufacturing	3
Brand Manager	2
Clinical Research Scientist	2
Competitive Intelligence Professional	2
Coordinator	2
Founder	2
Head of Innovation	2
Head of R&D	2
Institutional Leader	2
Lecturer/Senior Lecturer	2
Librarian	2
Licensing Professional	2
President/Vice President	2
Product Planning	2
Professor	2
Others	15

References

- ¹ Wiley Online Library, "The first blood banker: Oswald Hope Robertson", <https://onlinelibrary.wiley.com/doi/abs/10.1046/j.1537-2995.2000.40010110.x>, Apr 02
- ² <https://onlinelibrary.wiley.com/doi/abs/10.1046/j.1537-2995.2000.40010110.x>,
- ³ Euronews, "Covid-19 economic impact will be 'unprecedented and long-lasting', OECD warns", <https://www.euronews.com/2020/06/10/covid-19-economic-impact-will-be-unprecedented-and-long-lasting-oecd-warns>, Jun 20
- ⁴ CNBC, "China says its economy shrank 6.8% in the first quarter as the country battled coronavirus", <https://www.cnbc.com/2020/04/17/china-economy-beijing-contracted-in-q1-2020-gdp-amid-coronavirus.html>, Apr 20
- ⁵ McKinsey, "Lives and likelihoods: assessing the near-term impact of COVID-19 on US workers", Apr 20
- ⁶ McKinsey, "Covid-19 implications for businesses", <https://www.mckinsey.com/business-functions/risk/our-insights/covid-19-implications-for-business>, Jun 20
- ⁷ World Economic Forum, "U.N. warns of global mental health crisis due to COVID-19 pandemic", <https://www.weforum.org/agenda/2020/05/united-nations-global-mental-health-crisis-covid19-pandemic/>
- ⁸ FT, "China's stimulus will not stop metal demand falling", <https://www.ft.com/content/ac505d52-84fb-4c20-b17d-a9d463cea3a2>, May 20
- ⁹ USPTO, "USPTO announces extension of certain patent and trademark-related timing deadlines under the Coronavirus Aid, Relief, and Economic Security Act", <https://www.uspto.gov/about-us/news-updates/uspto-announces-extension-certain-patent-and-trademark-related-timing>, Mar 20
- ¹⁰ Harvard Business Publishing, "Innovation in a time of crisis", <https://www.harvardbusiness.org/innovation-in-a-time-of-crisis/>, Mar 20
- ¹¹ Bosch, "Combating the coronavirus pandemic: Bosch develops rapid test for COVID-19", <https://www.bosch.com/stories/vivalytic-rapid-test-for-covid-19/>
- ¹² The Vintage News, "Ten WWII inventions that changed the world we live in", <https://www.thevintagenews.com/2016/08/17/ten-wwii-innovations-changed-world-live-better/>, Apr 16
- ¹³ Entrepreneur, "COVID-19 Will Fuel the Next Wave of Innovation", <https://www.entrepreneur.com/article/347669>, Mar 20
- ¹⁴ World Economic Forum, "These new gadgets were designed to fight COVID-19", <https://www.weforum.org/agenda/2020/04/coronavirus-covid19-pandemic-gadgets-innovation-technology/>, Apr 20
- ¹⁵ Source: Top 1,000 entities as ranked each year for the Derwent Top 100 Global Innovators
- ¹⁶ Derwent Top 100 Global Innovators 2020, <https://clarivate.com/derwent/top100innovators/>, Jan 20
- ¹⁷ Harvard Business Review, "Innovators become leaders", <https://hbr.org/sponsored/2019/11/innovators-become-leaders>, Nov 19
- ¹⁸ Harvard Business Review, "4 behaviors that help leaders manage a crisis", <https://hbr.org/2020/04/4-behaviors-that-help-leaders-manage-a-crisis>, Apr 20
- ¹⁹ The Verge, "Dyson says the UK doesn't need the ventilator it developed to treat COVID-19 patients", <https://www.theverge.com/2020/4/25/21236141/dyson-ventilator-25-million-covid-19-coronavirus-ford-tesla-gm>
- ²⁰ Senior decision makers – survey respondents with C-level, President, VP or "Head of" job roles
- ²¹ Information professionals – survey respondents with Researchers, Librarians, Analyst or Competitive Intelligence as job roles
- ²² Forbes, "The coronavirus challenge: A Navy Seal's guide to leading through adversity", <https://www.forbes.com/sites/brentgleeson/2020/03/16/the-coronavirus-challenge-a-navy-seals-guide-to-leading-through-adversity/#2034bf582f93>, Mar 20
- ²³ WIPO, "The Global Innovation Index 2019", https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2019-chapter1.pdf
- ²⁴ USPTO, "COVID-19 prioritized examination pilot program", <https://www.uspto.gov/initiatives/covid-19-prioritized-examination-pilot>, May 20

About Clarivate

Clarivate™ is a global leader in providing trusted information and insights to accelerate the pace of innovation. We offer subscription and technology-based solutions coupled with deep domain expertise that cover the entire lifecycle of innovation – from foundational research and ideas to protection and commercialization. Today, we're setting a trail-blazing course to help customers turn bold ideas into life-changing inventions. Our portfolio consists of some of the world's most trusted information brands, including the Web of Science™, Cortellis™, Derwent™, CompuMark™, MarkMonitor™ and Techstreet™. For more information, please visit clarivate.com.

About Derwent

Derwent™ powers the innovation lifecycle from idea to commercialization – with trusted patent data, applications and services including Derwent Innovation™, Derwent World Patents Index™, Derwent Patents Citation Index™ and Derwent Data Analyzer™. We build solutions for inventors, patent attorneys and licensing specialists at start-ups and the largest global innovators, legal professionals at the leading intellectual property practices, and patent examiners at more than 40 patent offices. Our solutions are used to monitor technology trends and competitive landscapes, inform freedom to operate opinions, prosecute patents, monetize and license assets and support litigation activities. For more information, please visit derwent.com.

Contact our experts today:

+1 215 386 0100 (U.S.)

+44 (0) 20 7433 4000 (Europe)

clarivate.com/derwent