WHICH INNOVATION & IP STRATEGIES CAN HELP BEAT COVID-19?

What are the different approaches currently taken and what we can learn?

Imagine…

Scientist Claire is the lead of one of the many teams within her big pharma company, all of whom are toiling day and night to develop a vaccine as soon as possible to combat the corona virus. Will they be able to put something out in time to help affected people?

Public health officer James has been asked by his superiors to find a solution for tracking those affected by the virus without compromising their privacy. Who can support him with such a solution?

Engineer Jin has supported her hardware firm to rapidly develop and deliver ventilators to the local hospitals to overcome the shortage. Can her firm do all of it on their own?

All three persons need the right resources at the right time during these desperate times. Supply chains are disrupted, local manufacturing is not ready to meet the rapidly increasing demands for healthcare items, and technology and knowledge are put at stress by the pandemic.

The world is going through a health and economic crisis. To alleviate suffering and combat the pandemic, there is an on–going race to develop vaccines and treatments. In addition, there are multiple initiatives to scale up the production of essential equipment and materials such as ventilators, masks, inhalers, development of new technologies, processes etc, to help treat affected people and save lives.

One may think, what has Intellectual Property (IP) got to do with the on–going innovative projects? Or just about anything that is going on now? We think IP plays a crucial role in the choices that governments, companies, policymakers and even citizens make during these challenging times, because a lot depends on the delicate balance that should be maintained between establishing access to and the protection of IP. Who knows and owns what? How can that be put to use during this time of crisis?

The key question is: where to start now to beat Covid–19? Claire, James, and Jin are looking for solutions. Answers to which lie in the Innovation and IP strategy they and their organizations would choose.

IP and Innovation during Covid–19 times

Today, Innovation and IP responses to Covid–19 are coming together in the most interesting and inspiring ways.

On the one side, Labrador Diagnostics notoriously earned the title of a patent troll when it sued BioFire over infringement of two of its patents on methods of Covid19 testing. This instance threatened the use of new Covid19 tests developed by BioFire who is also collaborating with the U.S Department of Defense; exclusivity over software, granted through a patent, was standing in the way of innovation.[1] After some backlash, Labrador Diagnostics granted royalty free licenses on its patents for Covid19 testing.

On the other side, a coalition of scientists, entrepreneurs and lawyers came together committing to make '…intellectual property available free of charge for use in ending the COVID–19 pandemic and minimizing the impact of the disease.'[2] Intel, Unified Patents and Fabricatorz Foundation started this movement, with more businesses and institutes coming forward to granting free, temporary access to their own IP rights.

In another rare instance, competitors Google and Apple have forged a partnership to release an application programming interface that apps from public health organizations can tap into[3].

The partnership of these competitor platforms, and the OpenCOVID pledge, which identifies that, 'enabling individuals and organizations across the world to work on solutions together, without impediments, is the quickest way to end this pandemic'[4] These are examples of how the world is adapting and reacting

[1]https://www.eff.org/deeplinks/2020/03/feds-can-stop-patent-trolls-endangering-covid-19-testing-and-treatment
2 https://creativecommons.org/2020/04/07/open-covid-pledge-removing-obstacles-to-sharing-ip-in-the-fight-against-covid-19/
3 https://www.apple.com/newsroom/2020/04/apple-and-google-partner-on-covid-19-contact-tracing-technology/
4 https://opencovidpledge.org/category/news/

to combat a virus that is changing the way we live. Each case has an underlying innovation and IP strategy.

If there is one thing that has become evident during this crisis, it is the interdependence of countries, organizations, and people. To avoid duplication of R&D and to promote the optimal use of resources, collective efforts are the need of the hour to tackle this global challenge. A lot of the research carried out now is an effort of cooperation. Yet, there are some restrictive practices, either because of law, economic benefits, etc. For example, the OpenCovid pledge hopes to remove the impediments to quick development and deployment, caused by IP licensing and royalty arrangements. At the same time, collaboration with competitors need to be legally vetted to comply with anti–trust laws. While so, a strategic approach to how IP is handled, especially in this race to finding a cure, plays a key factor that can make or break all efforts taken.

The burning question is: how can we strategize innovation and how to handle IP in order to effectively beat Covid–19? In this blog, we will look into the different choices made by organizations and countries to draw some lessons for the future on how to tackle complex and urgent situations.

Key questions are the following:

1. Which Innovation & IP strategies can help beat Covid–19?
2. Is there a winning strategy?
3. Which strategy works when?

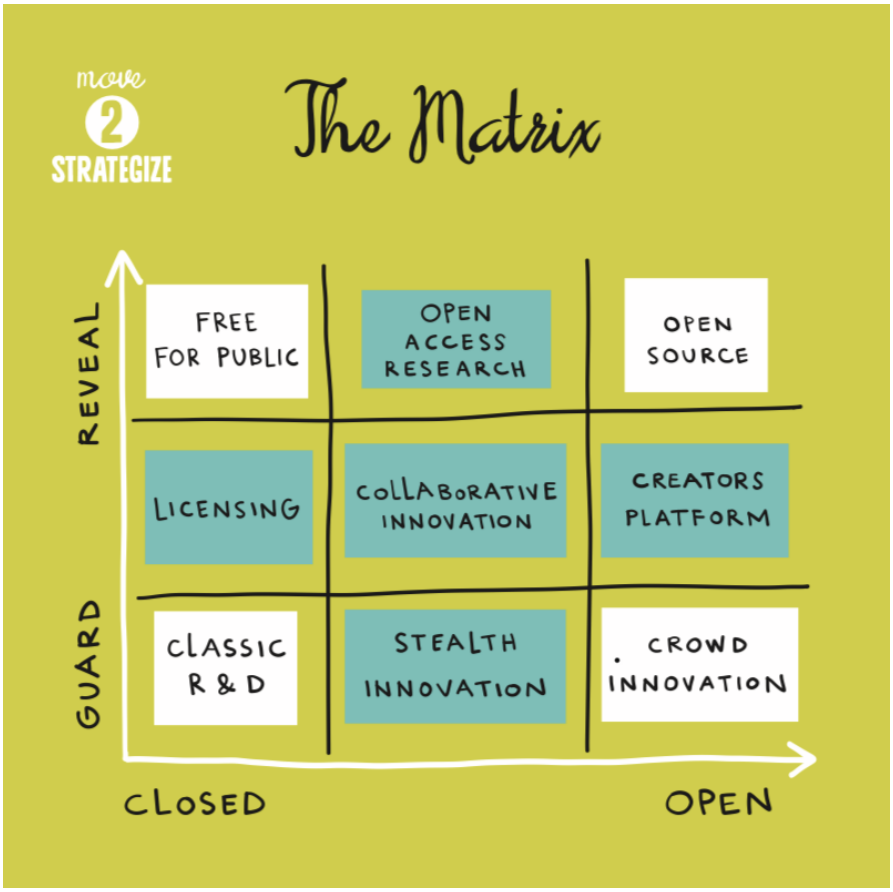
Trying to see the forest for the trees

To answer these questions, in this blog we plotted Covid–19 related innovation initiatives in the news, on 'the Innovation Matrix'[5]. The Matrix gives an overview of nine possible strategies having an impact on Innovation, Partnering, Contracts and IP. Plotting the cases to the Matrix could help anyone involved in such initiatives to see the bigger picture now, and to take the right strategic choices in such an urgent situation with so much at stake.

[5] *Please note that the following examples are used based on publicly available information. If anything is not in line with the facts or if you might know about other interesting examples that can be used, please let us know. As you may notice, many of these examples can fall into more than just one box. Such is that nature of innovation!*

As a brief introduction to the Matrix:

1. The x–axis of the Matrix represents how many parties you can work with: open versus closed innovation, i.e. do you innovate individually/within your organization, with a few parties, or with many parties.
2. The y–axis represents the approach taken towards IP: whether the organization guards their IP, licenses it to some or instead reveals it to many.
3. The four corners of the Matrix represent the extremes: Classical R&D, Reveal to the Public, Open Source, and Crowd Innovation.



The cross or 'the mellow middle' as we call it, is dynamic in the sense that organizations can get creative in their approach. For a more detailed explanation including many real life examples, please refer to our book 'The Innovation Matrix', BIS Publishers, Amsterdam, 2019.

Classic R&D

Many of the organizations working on the vaccine use the classic R&D approach, at least in varying degrees. The world's largest healthcare company Johnson & Johnson (also Janssen) announced on March 30th that they have identified a lead vaccine for further testing, which may go into production and be available in 200.000, with the support of U.S Government's BARDA. This

was made possible when Janssen's AdVac® and PER.C6® technologies which can be considered classically developed R&D were extended for collaborative innovation with other medical institutes.

Gilead, on the other hand, sought an 'orphan' designation under the U.S 'Orphan Drug Act' to seek extended exclusivity and tax benefits on their drug Remdesivir by claiming that Covid19 was a rare disease, as at the time of application there were less than 200.000 people affected in the USA. The designation has now been withdrawn after much opposition. While such a classic approach could have spurred internal innovation, the move to withdraw the application, can probably create more positive impact by providing relatively easier access to the IP, and benefitting the public.

In another case, Roche reportedly refused to provide a Covid–19 testing formula at a time of need in the Netherlands; this is the consequence of a vendor lock–in strategy, whereby labs that use Roche machinery have to procure Roche materials only for any experiments or manufacturing.[6] So, while Roche suffered a shortage of materials, it was not willing to share the prescription to enable the labs to develop tests otherwise. Following a probe by the Dutch consumer authorities, on whether Roche was abusing its dominance, Roche agreed to supply the formula to the Dutch government. While Roche may have exclusivity and/or monopoly over its formula developed under classic R&D, in the interest of the public, such denial of access could in addition to legal battles, harm their reputation more than anything else.

Free for public

AbbVie, a US drug maker became the first major company to announce that it will not enforce patents relating to all formulations of its antiviral combination drug Kaletra. Although its utility as a Covid19 drug is still being tested, HIV infected patients will now gain benefits because generic supply is permitted now.[7]

[6] https://dutchreview.com/news/roche-pharmaceuticals-why-large-scale-testing-for-coronavirus-isnt-happening-in-the-netherlands/

[7] https://www.ft.com/content/5a7a9658-6d1f-11ea-89df-41bea055720b

In another case, Dutch scientists pulled apart a 1960s mechanical ventilator that was safely kept in a museum to develop a template for easy–to–build ventilators[8]. The team intends to share the template for this ventilator that does not use software or electronics for free, particularly to developing countries. A replica has been reportedly shipped to researches in Guatemala. The fact that the museum permitted such use is another speciality of this case.

Open Source

Data scientists of Penn Medicine created an open source application named COVID–19 Hospital Impact Model for Epidemics (CHIME) which helps to evaluate the hospital demand based on admitted patient input and other variables. This tool enables hospitals and public officials with capacity planning.[9]As demand for the app increase, collaborative support was sought from Code for Philly, who now manage the open source project. The idea of the teams is make the tool redeployable and reusable as quickly as they can.[10]

Open source innovation is not limited to software alone. In the case of Open PCR[11], a device to test if the virus is present on surfaces, its creators wanted to democratize access to molecular diagnostics. Conventional machines cost ~30.000USD. However with this DIY 500USD Kit, users can monitor their environment and make decisions quickly on mitigation measures such as cleaning, closures, contact tracing etc.

[8] https://www.reuters.com/article/us-health-coronavirus-netherlands-ventil/back-to-the-future-dutch-revive-1960s-ventilator-for-coronavirus-fight-idUSKBN21Z2X5
[9] https://oto.med.upenn.edu/2020/03/31/covid-19-hospital-impact-model-for-epidemics-chime/
[10] https://codeforphilly.org/blog/call_to_action_-_chime
[11] https://openpcr.org

Open Source Ventilator (OSV)[12] is a project to generate open source designs for ventilators that can be mass produced across the world.

Crowd Innovation

Innovation need not to be done only by and between companies and organizations. Many people, just like you and I want to pitch in to help with this situation. To support this, several hackathons have been launched to stimulate crowd innovation. In 'other' circumstances these hackathons would have been competitions with winners and prizes too.

One of the more interesting hackathons is the 48 hours #Wirvsvirus[13] launched by the German Government to seek suggestions for solving Covid19 related problems, which had 42.968 people participate. The winners receive further support to expand the idea, take a prototype to market etc, so that their ideas can have maximum impact in fight against the virus. However, it is not clear what the IP terms are, or how their ideas will be supported as there is not direct financial support given.

While so, Financial Times is planning a 'Global Legal Hackathon', 'To unleash the talent and creativity of the world's legal industry to collaboratively innovate solutions to the most pressing legal, regulatory, and civil society challenges posed by the COVID–19 crisis that is currently engulfing the world.'[14] The IP terms are crystal clear in this case, where all IP vests with the inventor or the original owner.

[12]https://www.hackster.io/news/open-source-ventilator-openlung-projects-aim-to-address-the-covid-19-ventilator-shortfall-c7a5ee2f8e58

[13] https://www.deutschland.de/en/topic/knowledge/hackathon-on-corona-wirvsvirus-brings-solutions

[14] https://globallegalhackathon.com

Licensing

In the course of the last few weeks, countries like Chile, Canada, Israel and Germany indicated that they would resort to compulsory licenses to Covid19 related IP, if required for the rising numbers of affected persons.

Definition

COMPULSORY LICENSING

When a government allows someone else to produce a patented product or process without the consent of the patent owner or plans to use the patent – protected invention itself. It is one of the flexibilities in the field of patent protection included in the WTO's agreement on intellectual property – the TRIPS (Trade–Related Aspects of Intellectual Property Rights) Agreement.

What about countries that do not have access to or cannot afford such IP?

In the last week of March, Costa Rica addressed the Director General of WHO to create a voluntary pool of IP related to Covid19 that could be shared for developing drugs, vaccines and diagnostics. Following this, many countries and organizations, including the WHO have started supporting the call. It is a matter of whether IP will be shared for free, or licensed under certain terms, but it has kick–started a movement.

Following Costa Rica's call for action, Unitaid and UN's Medicines Patent Pool (MPP) which deals with access to medicines for developing countries by negotiating voluntary licenses from patent holders and pooling IP, announced the extension of its scope to include Covid19 related IP.

Definition

PATENT POOLS

Can be defined as an agreement between two or more patent owners to license one or more of their patents to one another or to third parties. Often, patent pools are associated with complex technologies that require complementary patents in order to provide efficient technical solutions.

Open Access Research

The OPENCORONA consortium consisting of leading medical institutes, universities, and industry has recently been granted emergency funding under the H2020 programme to develop a vaccine for Covid19. This grant qualifies as open access research due to the use of state funding. The consortium members can claim a right to the IP developed under the project, yet the European Commission will have access to the IP, and if the members do not utilise the IP within a certain period of time, their rights may be transferred to other parties ('use or lose').

Creators Platform

The Ontario Government's Covid19 Collaboration platform[15] is set up to connect local solution seekers to solution providers, so that they can collaborate on covid19 related products and services and bring them to the market at an accelerated pace.

Startupblink collaborated with Health Innovation Exchange[16] and the Moscow Agency of Innovations to create the Coronavirus Innovation Map[17] , a database to map innovation projects, and to connect innovators globally. This helps public and private bodies to identify relevant innovative projects that can meet their demands, or they may want to invest in further. While the user who submits ideas retains ownership over any intellectual property submitted[18], the other users will gain a non–exclusive license to the same. Of course, the users can use their discretion on how the idea is submitted.

Stealth Innovation

This is a strategy that is used when innovation within an organization or between two or more organizations is kept in wraps until a point of maturity in a technology or a big reveal moment. At the time of writing this blog, we have not yet identified a case.

[15] https://oce-ontario.org/programs/covid-19-collaboration-platform
[16] UNAIDS initiative to leverage the potential of innovations to improve the health of all.
[17] https://coronavirus.startupblink.com
[18] https://www.startupblink.com/blog/terms-conditions/

Collaborative Innovation

Collaborations during these times are not just restricted to product or technology innovations, as you may have seen in some of the other boxes, but also in terms of processes and service innovations.

For example, two Belgian grocery giants, and competitors Delhaize & Colruyt have collaborated[19] to deliver groceries free of charge to hospital staff. Their collaboration is effectively centralizing the distribution and logistical organization to implement this idea, also with support from the logistics departments of the hospitals. Although competitors, in this case, both parties have capitalized on their key resources to serve a community in need. Such collaborative innovation may have been unlikely in other circumstances.

You will identify that cases placed in other boxes of the Matrix, are also some variants of collaborative innovation. This is an indicator of how organizations can get very creative with how they collaborate.

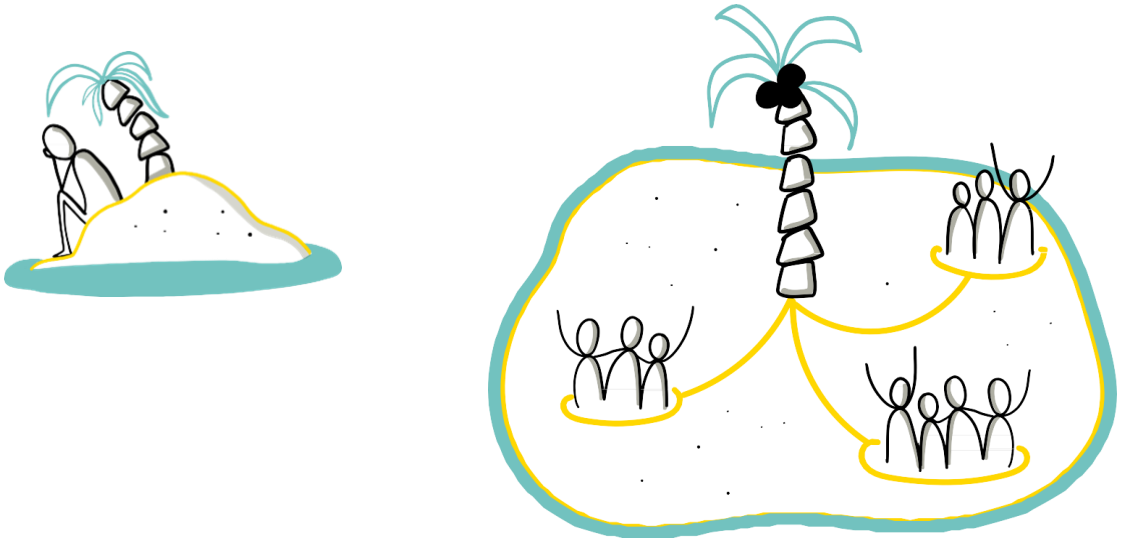
Conclusions

In the first place we generally identify from the discussed examples that:

- There is the common interest to beat Covid19.
- Parties realize the interdependency and need for collaboration. It is challenging to individually beat this pandemic in a timely manner; 'no man is an island', and neither are organizations, in these days.
- There are very different ways of approaching innovation in this crisis.
- Many parties struggle with the so called 'paradox of openness'. It's hard to find the right balance between giving access to and protecting IP. In some cases, existing organizational policies or even regulations are in conflict with the interests to collaborate to find a solution. Should they defend their IP to earn back past investments and/or make profits? Or should they work for the common goal to alleviate the crisis to put the society back on track?

[19] https://www.colruytgroup.com/wps/portal/cg/en/home/press/press-releases/Colruyt-Group-Delhaize-belevering-Belgische-ziekenhuismedewerkers

We see organizations and countries are getting creative and learning on the go, as you can see in the examples. The paradox of openness in collaborations can never be completely solved, but it is being handled effectively in different manners by different parties.



Before we get back to answering the key questions we raised before, we would like to note that the experiences gained universally during these times will have to be dissected again over time to determine which strategies worked and which ones did not during this pandemic. Nevertheless, some preliminary responses to the questions can be drawn, as follows:

Ad 1. Which Innovation & IP strategies can help beat Covid–19?

As seen from the examples described in this blog, all strategies in the different boxes of the Matrix can help beat Covid–19.

Ad 2. Is there a winning strategy?

Naturally, there is not one 'winning' or a one–size fits all strategy that is THE best. Often a mix of two or three several strategies leads to success. As you may have noticed in the examples discussed, they do not strictly fit into one strategy. For example, a big–wig such a Novartis, does internal R&D and at the same time collaborates with different organizations.

Ad 3. Which strategy works when?

We do see that some Innovation & IP strategies are probably more effective than others; which one is most effective depends largely on the best match with the organizational and situational context, such as the interests of the

parties, who contributes what, characteristics of the technology (such as generic versus specific), the business models of parties involved, characteristics of the industry they work in and of the organization/government/country itself. (We explain in more detail how to link these characteristics with the strategies, in our book as referred to earlier.)

If we zoom out, we notice in general that:

- If speed is key, knowledge is widely spread but specific in terms of technology requirements, and investments relatively low: Open Source can be a suitable strategy.
- When past investments were high and organizations have enough internal resources to innovate on their own – strong patent portfolio, internal R&D labs, availability of funding, dynamic business models: Classic R&D and/or licensing could be used.
- If knowledge is widely spread in the society or industry, and innovation requirements are not highly specific: you could involve passionate and skilled citizens and organizations through crowd innovation.
- Organizations could reveal their IP if support to the society is primary. They could also chose to partly reveal it, if they wish to boost sales of their related products and/or services. The Matrix strategy to be used would be: Free for Public.
- If there is a joint interest by the parties for public health: multiple mechanisms could be used under Collaborative Innovation.
- If legal impediments stand in the way to research and development, licensing, for example through patent pooling could be a matching strategy.
- In order to boost social and economic access for developing countries, licensing, collaborative innovation, open source and reveal to the public could be used.

As you see, there are multiple combinations one can use in the distribution of IP, as a catalyst for innovation, as a means to providing easier access to public health measures, and in general to help beat Covid19. Which strategy do you think Claire, James, and Jin could best choose? Clear and flexible strategies can help them strike a balance between securing economic and social interests and to handle the challenging paradox of openness. It is not impossible to making it a win–win situation for all. As time goes, we will learn a lot more

about which of these strategies were a success, or created the most impact, and which ones did not. Time will tell.

We would love to hear your thoughts on this subject and share insights. If you have more information on the cases, wish to showcase your own efforts within the Matrix, tell us about how your Innovation & IP strategies enabled (or not) to beat Covid19 during these times, please drop us a line!

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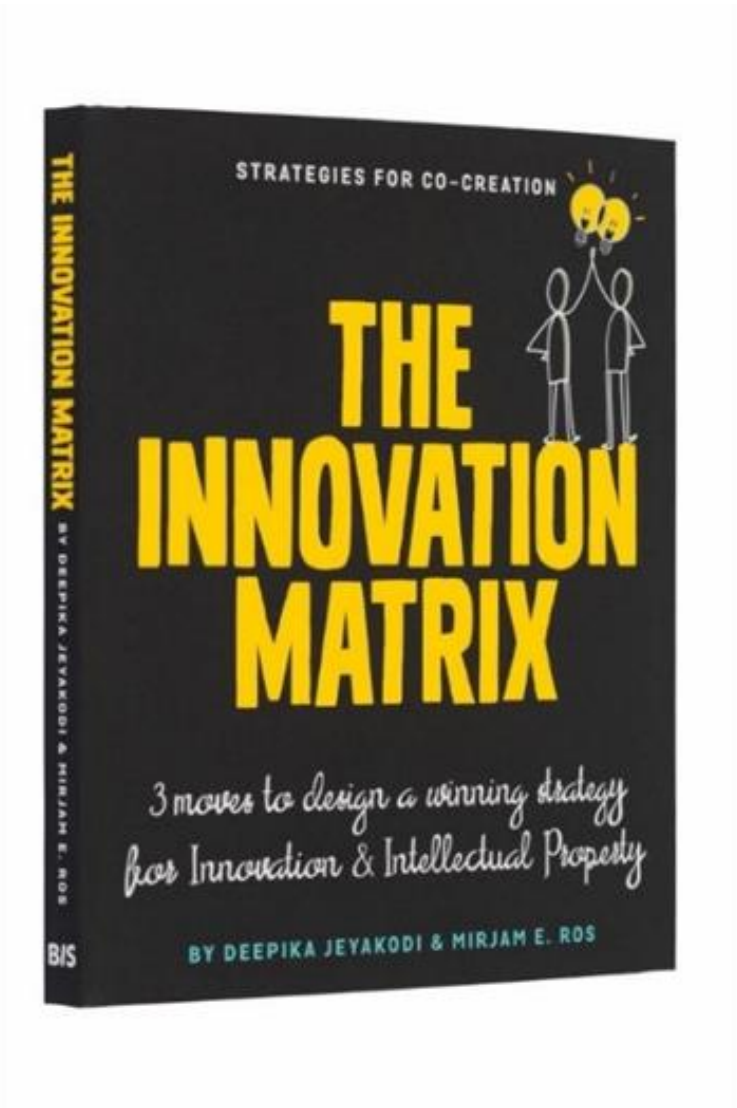
Authors of 'the Innovation Matrix, 3 moves to design a winning strategy for Innovation & Intellectual Property', published by BIS Amsterdam, 2019.



When we try to pick out
anything by itself,
we find it hitched
to everything else
in the universe.

– John Muir