

Open Innovation and introduction to Corporate Venturing

Innovation, Management and Entrepreneurship (BMAN73112)



Learning Outcomes

Lecture 4: ICV and corporate venturing

By the end of this unit you will be able to:

- Identify the key factors associated with successful **external collaboration** for innovation.
- Understand what are the **key principles of open innovation** and its benefits (plus some challenges for implementation).
- Reflect on a **mini case**: a small firm Open Innovation experience.
- Be able to assess the **relevance of Internal Corporate Venturing (ICV)**

1. External Knowledge Sourcing and Collaboration

Many knowledge acquisition routes we saw in the previous lecture entail deep collaboration with external partners. The question then would be, why do firms use

external collaboration to help drive innovation? Two potential answers:

- Because they lack the internal resources (including knowledge) to 'go it alone'.
- To reduce the (technological and market) uncertainty of innovation.

But at the same time, these motivations may be inter-related. For example, by working closely with customers a firm can both increase its knowledge about user needs, and reduce the market uncertainty associated with the introduction of innovation.

Some of the common accepted ways or motivations for collaboration documented in the literature are:

- *Access to knowledge*: getting into that knowledge usually includes inter-firm collaboration and this could be done through horizontal linkages (with other firms but also other type of organizations such as universities, research centres, software companies,...) and vertical linkages within the value chain (customers, suppliers,...). Its objective is to gain wider knowledge about potential partners. That is, it is not only a matter of working in a particular project and focus on the success of the project in terms of the results obtained, but it is also related with the understanding of the capabilities of your partners, their strengths and weaknesses. In order to benefit from the collaboration, a firm will want to try to

understand some of the business culture, some of the business practices used to collaborate with other partners.

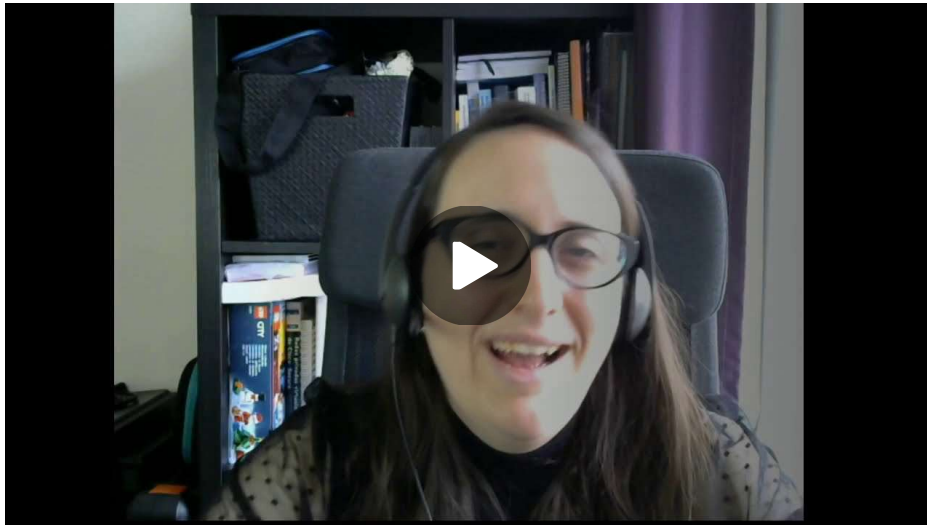
- *Sharing costs and risks:* Usually this is a major economic motive for many companies to collaborate, specifically in R&D projects.
- *Strategic motivations:* maybe the firm innovation strategy focuses on increasing the collaboration in the next few years as a way to gain access to, e.g., international markets.



Watch Video

Critical factors for success

In this video I will present the critical factors for a successful collaboration



<https://youtu.be/kz-OzOdIDz8>

[The video is also available [here](#).]

2. Open Innovation

We can define open innovation as:

“ A paradigm that assumes firms can and should use external ideas as well as internal ideas, and internal & external paths to market, as firms look to advance their technology.

“ Firms that can harness outside ideas to advance their own business, while leveraging their internal ideas outside their current operations will likely thrive in this new era of open innovation.

Chesbrough (2003, 2006)

2.1 Open Innovation principles

In Chesbrough (2003) book, the author does not only describe the Open Innovation (OI) principles, he compares them with, what he defines as, the closed innovation paradigm. Let's compare the key principles in both models:

hire the best people inside of our company we have to engage with the best talent and people outside the company. It is a change in the mindset for companies shifting to this OI principle.



R&D activities: Under the close paradigm, to bring new products and services to the market, the company must discover and develop them. In this way, the company that gets an innovation to the market first will usually win, because the company is putting the product into the market faster than the competitors. The model assumes that industry leaders in R&D investment will discover the best and most ideas and will come to lead the market as well because they are discovering the majority of these ideas. However, under the OI model, external R&D is taken into consideration because it can create significant value within the firm. But the company needs to combine external R&D with some internal R&D capacity to claim some portion of that value. Why is that? Because if you don't have internal R&D capacity you can't understand and appreciate what you can do with the R&D you are buying from outside, how best to utilize that knowledge you are bringing in for your company. The model moves from the approach "the company needs to discover in-house to profit from it" to the idea "we don't need to originate the research to profit from it and we can collaborate with external organizations to originate some of the research". The main objective of the OI model is to build a better business model rather than getting to the market first. Companies using the OI approach and making the best use of internal and external ideas will win market share.

NEW YORK TRADE BUSINESS DIRECTORY.

137.

PORTABLE STEAM ENGINE & MANUFACTURING CO.,
Watertown, N. Y.



Manufacture and keep on hand, complete or nearly so, **PORTABLE STEAM ENGINES,** From 3 to 25 Horse Power or Boilers with Economizers, for the purpose of cleaning or heating, and **STATIONARY ENGINES** From 5 to 40 Horse Power, with Boilers on cast-iron or tubular frames.

PORTABLE CIRCULAR SAW MILLS Always on hand. They are the best for the purpose of cutting lumber, and are sold at the lowest price.


D. W. BALDWIN, MGR.

IRON WORKS, Dealers in all kinds of Iron and Steel.

CO. NO. 70 of **BLE & ST** Iron Saw and Milling, Tongue and styles, Iron and Steel.

RAILWAY EQUIPMENT


It is probable that the conveniences of the world and the experience of those who manage them are not materially different as regards efficiency in other cases, to heighten or lessen results, as long men on or lighten their effort, but in the long run the fittest survive in every country. While their unfortunate brethren go to the wall, in order to construct cheaply, manufacturers must have continuous work and in sufficient quantity to keep the maximum amount of machinery and labor actively employed. If the work is irregular or insufficient to utilize, needed appliances, there is waste which shows itself in the increased cost of the product. It is the same with the builders of cars and locomotives as it is with the operators of railroads. A company that has sufficient traffic to keep its property and force profitably occupied can do business at less cost and, consequently, with greater profit than a company not so fully engaged.



French Locomotive. Designed for heavy work on steep grades, where conditions of bridges make it necessary to distribute the load on the drive to the minimum. Diameter of cylinders, 200 and 18 1/2 inches. Weight, 20,000 lbs. Net weight of locomotive, 12,000 lbs. Net weight of tender, 2,000 lbs. Wood capacity, 30 cubic feet.

In England, have not changed materially in the last 20 years, except that manufacturers have increased, so will take the substitution of labor in England from McGregor's Statistics, giving the figures of 1811. In some factories, however, we will give the result of the recent census, and the change in employment at different periods. The following are the results of the census of employment in the great divisions, as ascertained by the Census of 1811 and 1831 in Great Britain:


Manufactures employed in agriculture, 1811, 1831	1,011, 1,021
Manufactures employed in the mines and quarries, 1811, 1831	281,239, 281,239
Manufactures employed in the textile and allied industries, 1811, 1831	1,191,028, 1,191,028
Manufactures employed in other occupations, 1811, 1831	1,191,028, 1,191,028
Total number of families, 1811, 1831	2,012,201, 2,012,201
Families employed in agriculture, 1811, 1831	27,333, 27,333
Families employed in all other vocations, 1811, 1831	1,984,868, 1,984,868
Proportion of the whole employed in agriculture, 1811, 1831	1.35, 1.35
Proportion of the whole employed in other vocations, 1811, 1831	98.65, 98.65



LOCOMOTIVE WORKS.

For these reasons, in my description of the evolution of the locomotive (and, indeed, of the evolution of the locomotive generally), I shall strive to describe as nearly as I can the facts merely, machinery department generally, without occupying too much space over unimportant details of place, and without straining to determine to whom the fact first became apparent.

In this connection I will mention, what you may not know, that the practice of designating particular engines by specific names was followed in the early history of railroads. This has now given place to the use of numbers. Proceeding to details, let us first take up the cylinder. Surely there is nothing about the cylinder of greater importance than this. Trevithick, in 1803, had but one cylinder, placed horizontally on the inside. Up to 1826 the cylinders were placed vertically, half within the boiler. In 1826, when the engine "Experiment" was designed by George Stephenson for use on the Stockton and Darlington Railway, inclined



Railroad Record
PUBLISHED EVERY THURSDAY MORNING.
By T. WRIGHTSON & CO.
Office No. 187 Walnut Street.

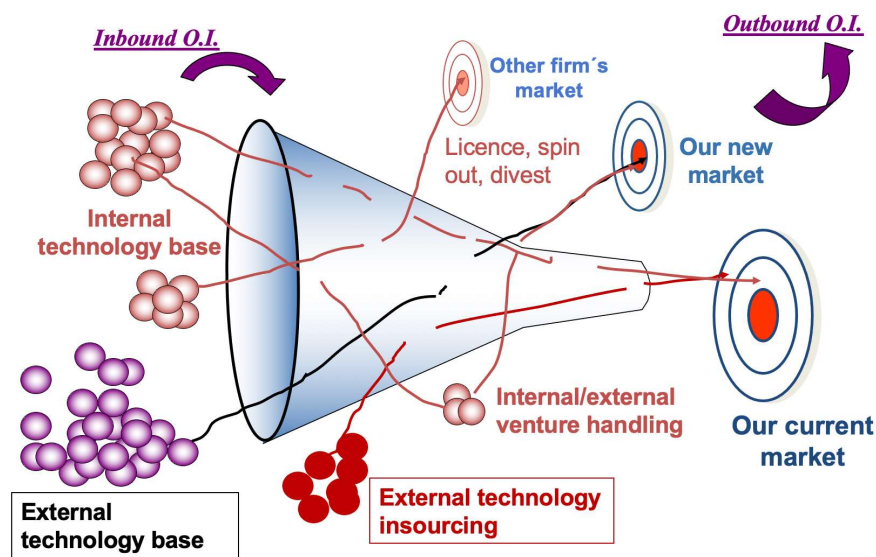
Subscription Twelve Months per annum, in advance	\$1 00
Advertisements, per line	50 00
One square, per month	10 00
One square, per annum	100 00
One column, per month	40 00
One column, per annum	400 00
One page, single insertion	10 00
One page, single insertion	25 00
One page, single insertion	100 00
One page, single insertion	200 00
One page, single insertion	400 00
One page, single insertion	800 00
One page, single insertion	1600 00
One page, single insertion	3200 00
One page, single insertion	6400 00
One page, single insertion	12800 00
One page, single insertion	25600 00
One page, single insertion	51200 00
One page, single insertion	102400 00
One page, single insertion	204800 00
One page, single insertion	409600 00
One page, single insertion	819200 00
One page, single insertion	1638400 00
One page, single insertion	3276800 00
One page, single insertion	6553600 00
One page, single insertion	13107200 00
One page, single insertion	26214400 00
One page, single insertion	52428800 00
One page, single insertion	104857600 00
One page, single insertion	209715200 00
One page, single insertion	419430400 00
One page, single insertion	838860800 00
One page, single insertion	1677721600 00
One page, single insertion	3355443200 00
One page, single insertion	6710886400 00
One page, single insertion	13421772800 00
One page, single insertion	26843545600 00
One page, single insertion	53687091200 00
One page, single insertion	107374182400 00
One page, single insertion	214748364800 00
One page, single insertion	429496729600 00
One page, single insertion	858993459200 00
One page, single insertion	1717986918400 00
One page, single insertion	3435973836800 00
One page, single insertion	6871947673600 00
One page, single insertion	13743895347200 00
One page, single insertion	27487790694400 00
One page, single insertion	54975581388800 00
One page, single insertion	109951162777600 00
One page, single insertion	219902325555200 00
One page, single insertion	439804651110400 00
One page, single insertion	879609302220800 00
One page, single insertion	1759218604441600 00
One page, single insertion	3518437208883200 00
One page, single insertion	7036874417766400 00
One page, single insertion	14073748835532800 00
One page, single insertion	28147497671065600 00
One page, single insertion	56294995342131200 00
One page, single insertion	112589990684262400 00
One page, single insertion	225179981368524800 00
One page, single insertion	450359962737049600 00
One page, single insertion	900719925474099200 00
One page, single insertion	1801439850948198400 00
One page, single insertion	3602879701896396800 00
One page, single insertion	7205759403792793600 00
One page, single insertion	14411518807585587200 00
One page, single insertion	28823037615171174400 00
One page, single insertion	57646075230342348800 00
One page, single insertion	115292150460684697600 00
One page, single insertion	230584300921369395200 00
One page, single insertion	461168601842738790400 00
One page, single insertion	922337203685477580800 00
One page, single insertion	1844674407370955161600 00
One page, single insertion	3689348814741910323200 00
One page, single insertion	7378697629483820646400 00
One page, single insertion	14757395258967641292800 00
One page, single insertion	29514790517935282585600 00
One page, single insertion	59029581035870565171200 00
One page, single insertion	118059162071741130342400 00
One page, single insertion	236118324143482260684800 00
One page, single insertion	472236648286964521369600 00
One page, single insertion	944473296573929042739200 00
One page, single insertion	1888946593147858085478400 00
One page, single insertion	3777893186295716170956800 00
One page, single insertion	7555786372591432341913600 00
One page, single insertion	15111572745182864683827200 00
One page, single insertion	30223145490365729367654400 00
One page, single insertion	60446290980731458735308800 00
One page, single insertion	120892581961462917470617600 00
One page, single insertion	24178516392292583494123200 00
One page, single insertion	48357032784585166988246400 00
One page, single insertion	96714065569170333976492800 00
One page, single insertion	193428131138340667952985600 00
One page, single insertion	386856262276681335905971200 00
One page, single insertion	773712524553362671811942400 00
One page, single insertion	1547425049106725343623884800 00
One page, single insertion	3094850098213450687247769600 00
One page, single insertion	6189700196426901374489539200 00
One page, single insertion	1237940039285380274897977600 00
One page, single insertion	2475880078570760549795955200 00
One page, single insertion	4951760157141521099591910400 00
One page, single insertion	9903520314283042199183820800 00
One page, single insertion	19807040628566084393767641600 00
One page, single insertion	39614081257132168787535283200 00
One page, single insertion	79228162514264337575070566400 00
One page, single insertion	158456325028528675150141132800 00
One page, single insertion	316912650057057350300282265600 00
One page, single insertion	633825300114114700600564531200 00
One page, single insertion	12676506002282294012011290622400 00
One page, single insertion	25353012004564588024022581244800 00
One page, single insertion	507060240091291760480451624889600 00
One page, single insertion	1014120480182583520960903249779200 00
One page, single insertion	2028240960365167041921806499558400 00
One page, single insertion	4056481920730334083843612991116800 00
One page, single insertion	8112963841460668167687225982233600 00
One page, single insertion	16225927682921336353774511964467200 00
One page, single insertion	32451855365842672707549023328934400 00
One page, single insertion	64903710731685345415098046657868800 00
One page, single insertion	129807421463706700830196093315737600 00
One page, single insertion	259614842927413401660392186631475200 00
One page, single insertion	519229685854826803320784373262950400 00
One page, single insertion	1038459371709653606641568746525900800 00
One page, single insertion	207691874341930721328313749310119116800 00
One page, single insertion	415383748683861442656627488620238233600 00
One page, single insertion	830767497367722885313254977240476467200 00
One page, single insertion	166153499473544577062650995448952934400 00
One page, single insertion	332306998947089154125301990897905868800 00
One page, single insertion	6646139978941783082506039817958117377600 00
One page, single insertion	13292279957883566160112120635916354755200 00
One page, single insertion	26584559915767132320224241271871301110400 00
One page, single insertion	5316911983153426464044482543742602220800 00
One page, single insertion	10633823966306852928088965087484204441600 00
One page, single insertion	2126764793261370585617793017496408883200 00
One page, single insertion	42535295865227411712355838349928177766400 00
One page, single insertion	85070591730454823424711776699855553331200 00
One page, single insertion	17014118346090964684942355379911110666400 00
One page, single insertion	340282366921819293698847107598222213332800 00
One page, single insertion	680564733843638587397694215196444426665600 00
One page, single insertion	1361129467687277174795388430392888533331200 00
One page, single insertion	27222589353745543495907768079577770666400 00
One page, single insertion	544451787074910869918155361591555413332800 00
One page, single insertion	10889035741498217398363107319831106665600 00
One page, single insertion	21778071482996434796726214639762133331200 00
One page, single insertion	435561429659928695934524292795242666400 00
One page, single insertion	8711228593198573918690485855904853332800 00
One page, single insertion	17422457186391547837380971711809706665600 00
One page, single insertion	34844914372783095674761943423619413331200 00
One page, single insertion	6968982874556619134952388684723882666400 00
One page, single insertion	13937965749113238299107773695447753332800 00
One page, single insertion	2787593149822647659821554739089546665600 00
One page, single insertion	5575186299645295319643109478179113331200 00
One page, single insertion	1115037259929059063928621955635422666400 00
One page, single insertion	2230074519858118127847243111308853332800 00
One page, single insertion	4460149039716236255694486222617706665600 00
One page, single insertion	8920298079432472511388974455235413331200 00
One page, single insertion	178405961588649450227779489104702666400 00
One page, single insertion	3568119231772989004555589782094053332800 00
One page, single insertion	7136238463545978009111179664188106665600 00
One page, single insertion	1427247692709195601822235932376213331200 00
One page, single insertion	285449538541839120364447186475242666400 00
One page, single insertion	5708990770836782407288943729504853332800 00
One page, single insertion	114179815416735648145778874590086665600 00
One page, single insertion	228359630833471296291557711980173331200 00
One page, single insertion	45671926166694259258311544396034666400 00
One page, single insertion	913438523333885185166630887920693332800 00
One page, single insertion	1826877046667770370333217775841386665600 00
One page, single insertion	3653754093335540740666435551682773331200 00
One page, single insertion	730750818667108148133327111336554666400 00
One page, single insertion	146150163733421636266654222673113331200 00
One page, single insertion	29230032746684327253330844534622666400 00
One page, single insertion	584600654933686545066617068892453332800 00
One page, single insertion	1169201309867373091333341777784906665600 00
One page, single insertion	2338402619734746182666683555569813331200 00
One page, single insertion	467680523946949236533336711139163332800 00
One page, single insertion	93536104789389847306667422227832666400 00
One page, single insertion	1870722095787796946133348444556553331200 00
One page, single insertion	37414441915755938922666888891111113332800 00
One page, single insertion	7482888383151187784533377778222222666400 00
One page, single insertion	149657767663037756890667555564444453331200 00
One page, single insertion	299315535326075513779333511111111113332800 00
One page, single insertion	598631070652151027558666102222222222666400 00
One page, single insertion	11972621413043020551173332044444444453331200 00
One page, single insertion	2394524282608604110223466640888888888666400 00
One page, single insertion	47890485652172082204469331777777777753331200 00
One page, single insertion	957809713043441644089766635555555555666400 00
One page, single insertion	1915619426086883288179953337111111111113332800 00
One page, single insertion	38312388521737665763599066642222222222666400 00
One page, single insertion	7662477704347533152719993338444444444453331200 00
One page, single insertion	15324954008695066254399866672222222222666400 00
One page, single insertion	306499080173901325087997333444444444453331200 00
One page, single insertion	6129981603478026501759946668888888888666400 00
One page, single insertion	1225996320715653000351989333777777777753331200 00
One page, single insertion	245199264143130600070397866615555555555666400 00
One page, single insertion	49039852828626120014079573333111111111113332800 00
One page, single insertion	980797056572522400281591466662222222222666400 00
One page, single insertion	19615941131450440056318293335444444444453331200 00
One page, single insertion	39231882262900880011263665866610222222222666400 00
One page, single insertion	78463764525801760022527317333204444444445333120

Next table summarizes the key differences between both (closed and open) innovation models.

Closed innovation	Open innovation
Hire the best people so that the smartest people in the industry work for us.	Not all the smart people work for us – we need to engage with best inside & outside our company.
To bring new products to the market we must discover them.	External R&D can create significant value; internal R&D is needed to claim some portion of that value.
We need to discover it ourselves to profit from it.	We don't need to originate the research to profit from it.
Company getting innovation first to market will usually win.	Building a better business model is better than getting to market first.
Industry leaders in R&D investments will discover the best & most ideas & will come to lead the market as well.	Companies that make the best use of internal and external ideas will win.
Control intellectual property to ensure that competitors do not profit from our ideas	Company can profit from others' use of IP & we should buy others' IP whenever it advances our own business model.

2.2 Chesbrough's Open Innovation business model

Next figure represents the innovation funnel described by Chesbrough (2004) explaining his open innovation model using a single company boundaries:



Source: H. Chesbrough UC Berkeley, Open Innovation: Renewing Growth from Industrial R&D, 10th Annual Innovation Convergence, Minneapolis Sept 27, 2004

10

Within this model there are two important terms: Inbound OI and outbound OI. The balloons on the left represent the knowledge pockets, key capabilities that needs to be developed in the firm. All these pockets, these capabilities go inside this funnel and though a decision process, the company needs to decide which of the knowledge is going to utilize and apply in order to obtain complementary advantage. Inbound OI refers to the inputs to be introduced in the innovation funnel and is composed by the internal technology base, the external technology base, the external technology sourcing, and internal and external venture handling. The internal technology base refers to in-house R&D (also called New Product Development) that uses the internal knowledge and capabilities available in the firm. Alternatively, the firm could develop an internal corporate venturing (ICV)

composed by a special team working in a particular project. When the capabilities are not available in-house, the firm could acquire them from external knowledge sources using long-term collaboration (external technology base) like strategic partnerships with external research organizations or short-term sources of knowledge (external knowledge insourcing).

Outbound OI refers to the outputs of the funnel, the strategic points where the company wants to offer its product or service. The company can target the current market, a new market and/or other firms' market.

- Outbound OI means that a company is using some of the external knowledge and capabilities to surf firms own market. Remember that the current market in which the firm operates is maybe giving your firm huge revenues (e.g. 50%, 70% of your revenues). There could be key customers that out of that percentage provides you around 10% of your business. So you have to keep that customer happy (responding to their needs, improving innovation, improving services, improving your reaction time, etc.) as they are part of your current market.
- The innovation strategy could identify new markets and decrease the reliance on the exiting markets. The main idea of the new markets is that the firm wants to approach new customers to sell the products or services.
- There are firms that maybe are not operating in your market, but maybe they operate in others' market and

they are also interested in your products. It could be a completely different sector. For example a company is licensing out some of their technologies outside its current market, it doesn't need to be in its own business segment. One example here is Nike, the sports manufacturer that some years ago discovered a very strong adhesive glue but was unable to use in their own products due to health & safety reasons. So regulations didn't allow them to exploit the IP of the in-house product discovered. Some of the Nike researchers attended a conference in glue technology and presented this glue. Some other firms from other sectors were interested in that product, specifically from the automobile tires sector as tires need different types of glue. Nike was able to sell the IP, through a license agreement, to a tire manufacturer, using the open innovation approach to target a completely new market.



Further Reading

The following paper complements the explanation of the open innovation model. It is available in your [online reading list](#).

- Chesbrough, H. (2007), 'Why companies should have open business models', *Sloan Management Review*, (Winter 2007) Vol. 48 (2), pp. 22-28.

2.3 Potential benefits and challenges of applying Open Innovation

Although the OI model looks very attractive, it is not straight forward to implement. There are some challenges:

- *Tap into external knowledge*: the key benefit is that using OI the firm increases the pool of knowledge and reduces the reliance on internal knowledge. However the challenge is the search for and identification of relevant knowledge sources. Some of the knowledge might be tacit knowledge and once you internalized it, you need to codify that knowledge. Similarly, another key point is how to transfer such knowledge, specifically tacit knowledge.
- *External R&D has significant value*: the OI model can reduce the cost and uncertainty associated with internal R&D. However it is less likely to lead to distinctive capabilities. This means that the firm starts to erode the internal R&D, downsize it to such an extent that might loose some of the capabilities currently available. It is important to pay attention to how much R&D the firm can outsource. How much does your company need to invest internally so you don't loose some of these capabilities?. It is also important to take into consideration that external R&D might also be available to your competitors.

- *Do not have to originate research to profit from it* and allows the firm to allocate more resources on external search strategies and relationships. However, the OI model still needs sufficient internal R&D capability in order to identify, evaluate and adapt external R&D. Think on this as your absorptive capacity as identifying, evaluating and adapting is a big thing to do and not a straight forward task. The downside is that conflicts of commercial interests or strategic direction could appear.
- *Profit from others intellectual property (IP) via Inbound O.I. and others use of our IP via Outbound O.I.* The Value of IP is very sensitive to complementary capabilities such as brand, sales network, production, logistics, and complementary products and services. Sometimes it conflicts of commercial interest or strategic direction. It is important and challenging the negotiation of acceptable forms and terms of IP licences.



CASE EXAMPLE: CURANA

Small firms should also look beyond their own boundaries to enhance competitiveness. This is the case example from a Belgian bicycle parts maker called CURANA. Curana was working in low-tech sector (bike accessories) but had to compete with low-cost imports from overseas competitors (from late-1990s onwards). In order to become a competitive firm, Curana had to experiment (up to 2-years) with different materials, processes and manufacturing partners before it produced a breakthrough product at the right price. The BLite mudguard was a stylish, superlight aluminium-and-plastic combination.

This product could NOT have been produced by Curana alone. Curana had to leverage the knowledge of other collaborating companies to move from a commodity producer to a market-driven leader and strategic partner for bike manufacturers. Experimentation is key to innovation and networks help small firms with limited resources drive the discovery process on larger scale. Personal ties are key for small firms in activating a network fast. The relationships with network partners work well when built on trust. CURANA developed relationships with local research institutes to help bring new ideas to the market. To ensure survival of this innovation network, the value created was divided equitably amongst partners. That means sitting together and working out collective and individual benefits for all partners.



Activity 1

Why Now Is the Time for “Open Innovation”? (*Deadline 14th March*)

Read the article "[Why now is time for open innovation](#)" written by Dahlander and Wallin. Reflect on the importance of open innovation under current uncertain circumstances. How can firms benefit from open innovation under the unprecedented circumstances? What

are the challenges companies face? Can you find any example of firms cooperating due to the COVID-19 pandemic? Leave your comments on the following Discussion Board in BB.

[Link to the Discussion Board in BB](#)

[Go to the next page](#)

*This material should be treated as private and confidential. ©
The University of Manchester, 2021 all rights reserved.*