

Open Innovation and IP issues of 3D Printing

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Structure

- What?
- Why?
- How?

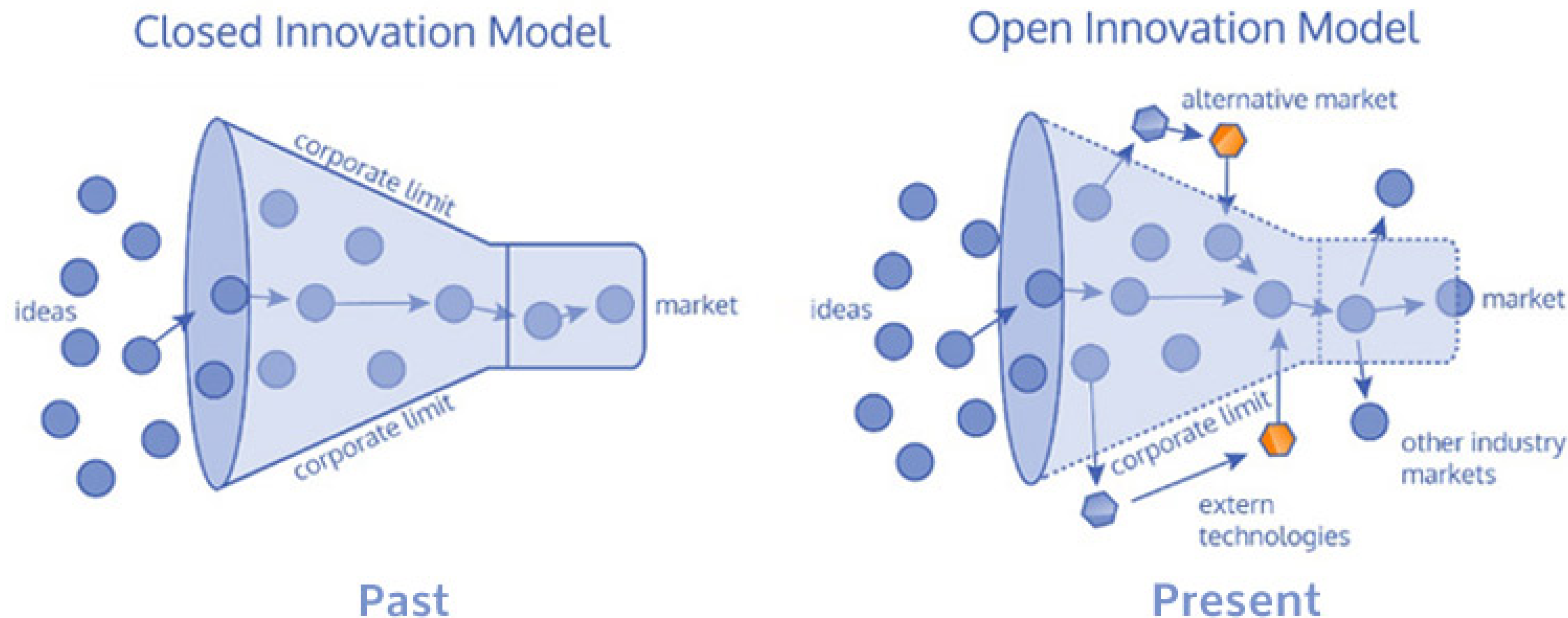
What is 3D printing?

- a process in which material is joined or solidified under computer control to create a three-dimensional object
- it can fill the gap of traditional machines by greatly lowering the cost in testing water, and provide opportunities for indie entrepreneurs or kick-starters.

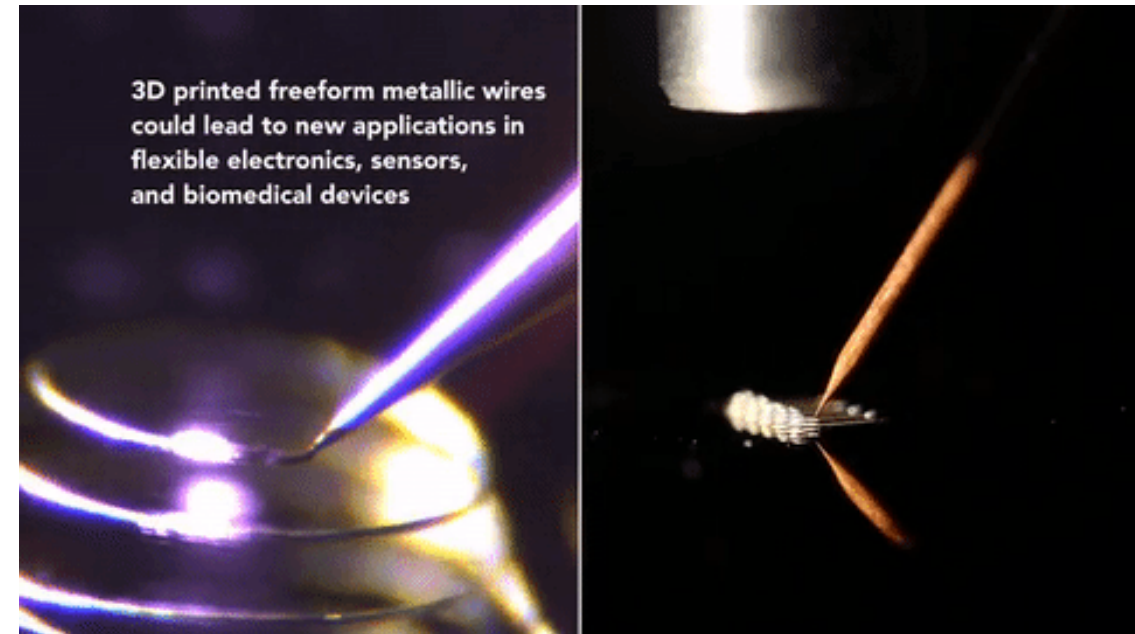


What is open innovation?

- it is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology, which is a concept of R&D management. - Henry Chesbrough*

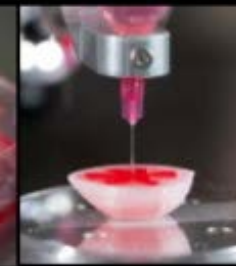


What is the focus?



- focus more on the most commonly seen IP issues related to 3D printing in mass-market productions

2. Regenerative Medicine and 3D Printing



Personalized 3D Models



Organ Regeneration



Whole Organ Decellularization and Recellularization (Heart)



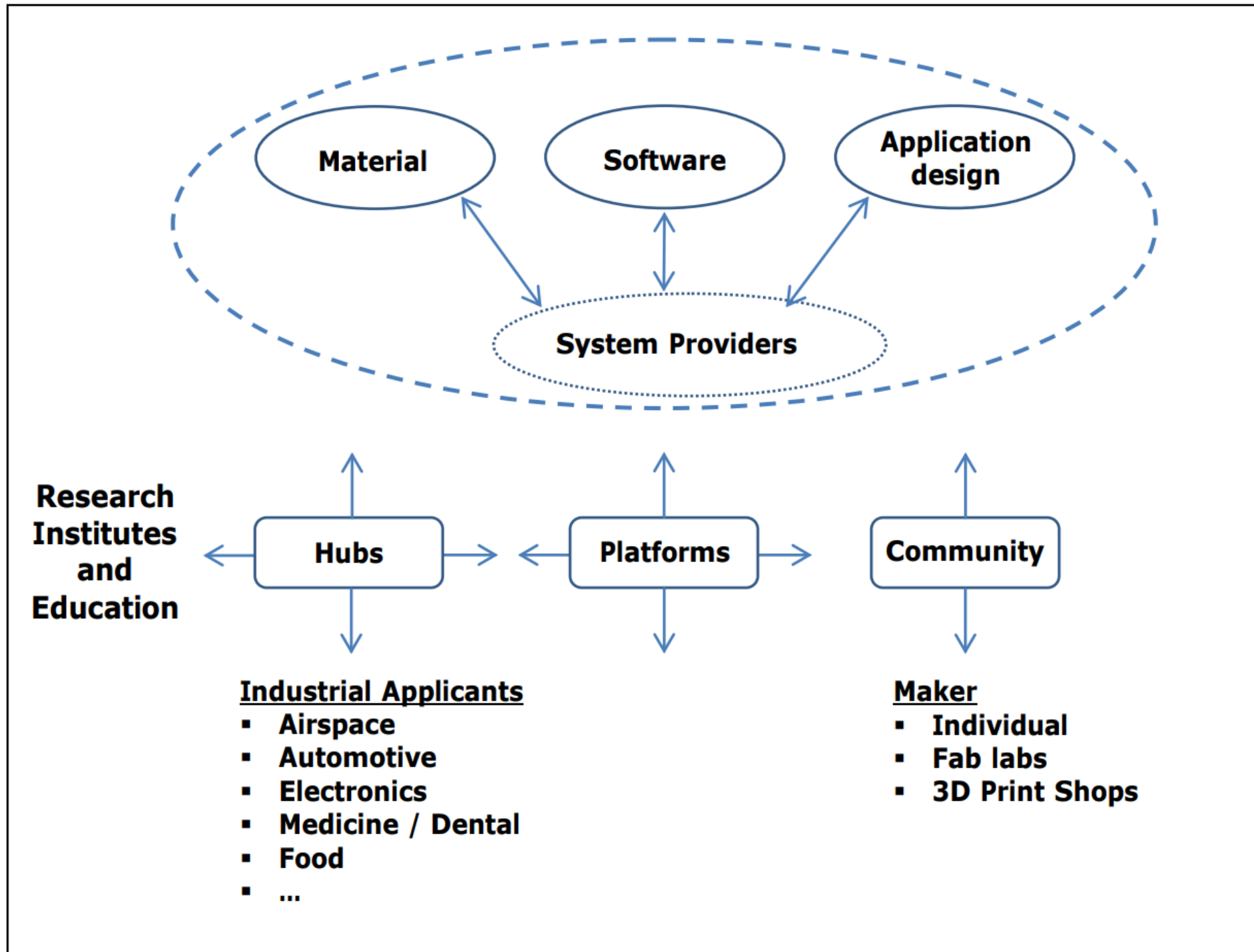
Lab-grown Meat

What is the biggest worry?

- a problem is not a problem until it causes some problem
- “The biggest issue for the AM (additive manufacturing, another term for 3D printing) industry is the generation of mistrust because of non-controlled environment at the consumer goods level.” - European Commission

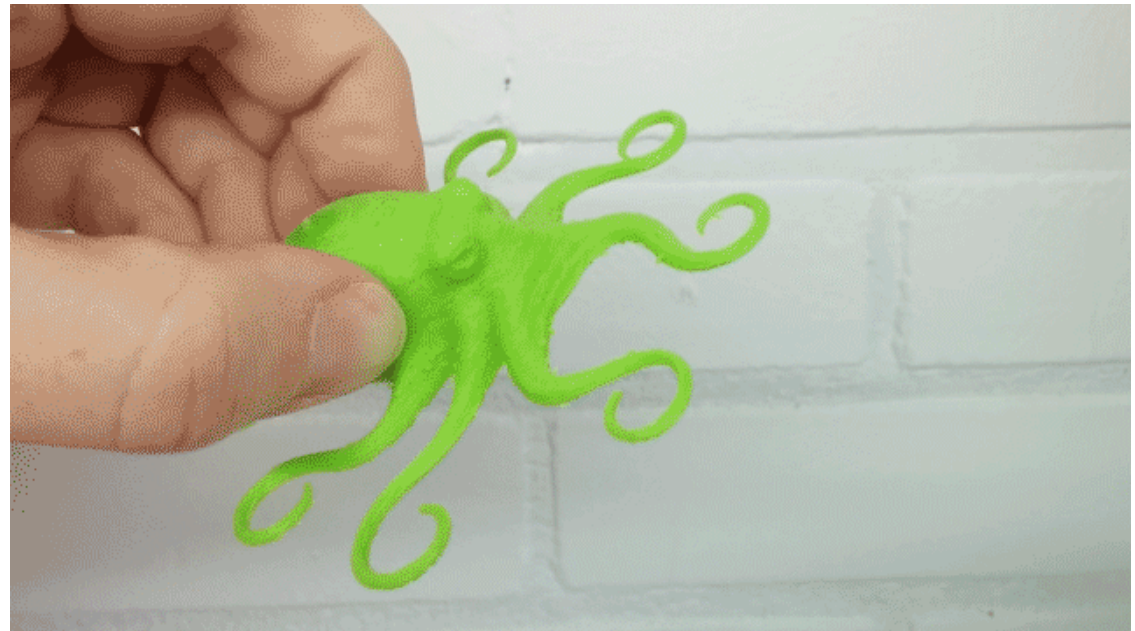


Why the environment is deemed out of control?



How to solve the crisis?

- it is not a crisis yet



How to solve the crisis?

- Attack the platforms (*Games Workshop v. Thomas Valenty*)



Not a good idea

- it is not so sure the CAD files can be protected by copyright (UK yes, US no)
- event if it could, the platform will not be a suitable judge to decide this
- put too much responsibility on platforms will hamper its function in encouraging distributed manufacturing, and will stand in the way of innovation

How can we solve the issue preemptively?

a technical solution: put on a DRM system that forces the machine to compare the wait-to-print job with a database of protected documents

side effect: it is pro-copyright owners and the space of private or fair use will be greatly reduced. Having the system as the judge.

How can we solve the issue preemptively?

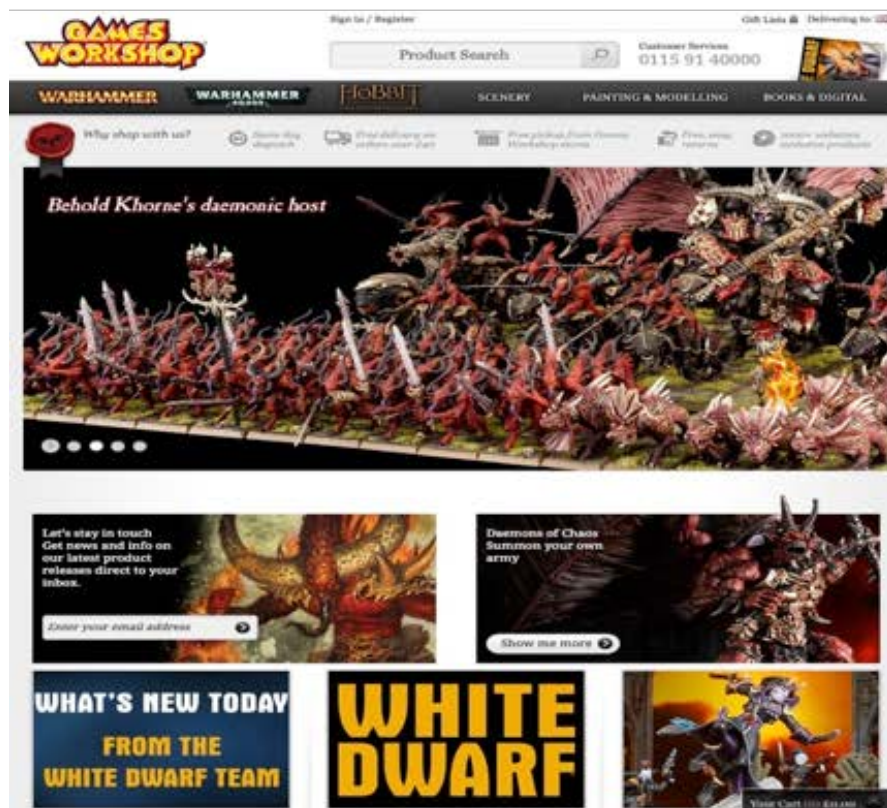
go beyond what John Palfrey called the “The Sword and the Shield” strategy and embrace the open innovation concept

see yourself as an IP strategist rather than a lawyer that merely fixes legal problems

The problem of having a huge number of people playing with your IP protected objects without permission looks bad indeed, but it is not all bad

Benefits

- If combined with the notion of big data and Internet of things, we could easily envisage that from the machine the right owners could collect information about product defect or customer preference, or even discover untapped market.



Games Workshop Ltd. v. Chapterhouse Studios, LLC

user innovation

- for the content industry: close innovation (professionals monopolize the production, the voice of consumer is not valued much) vs open innovation (In a prosumer age, consumers have the channel and the production tools, they express themselves by creating derivative works, fans voice can directly affect the ending of a TV series)
- companies such as LucasFilms and Lego have built platforms and provide tools and copyrighted materials to attract consumers, invite them to create and try to benefit from doing so

Why can't we rely on a closed innovation model anymore?

the growing mobility of highly experienced and skilled people

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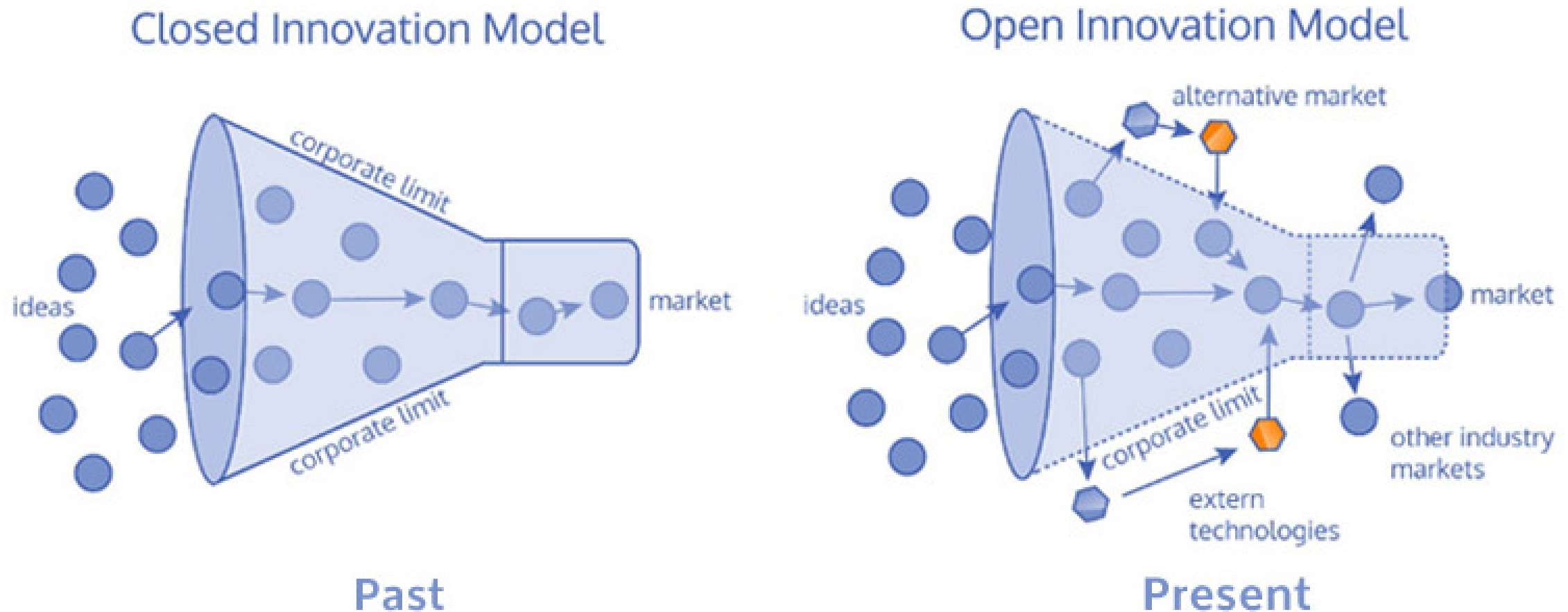
the increasing amount of college and post-college training that many people obtained

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knowledge to spill out of its traditional circles to companies of all sizes in many industries

the circle is broke

- if the company that funded these discoveries didn't pursue them in a timely fashion, the scientists and engineers could pursue these breakthroughs on their own - in a new start-up firm, which will later become a competitor.



different principles

Closed Innovation Principles

The smart people in our field work for us.

To profit from R&D, we must discover it, develop it, and ship it ourselves.

If we discover it ourselves, we will get it to market first.

The company that gets an innovation to market first will win.

If we create the most and best ideas in the industry, we will win.

We should control our intellectual property (IP), so that our competitors don't profit from it.

Open Innovation Principles

Not all the smart people work for us. We need to work with smart people inside *and* outside our company.

External R&D can create significant value; internal R&D is needed to claim (absorb) some portion of that value.

We don't have to originate the research to profit from it; we can still be first if we successfully commercialize new research.

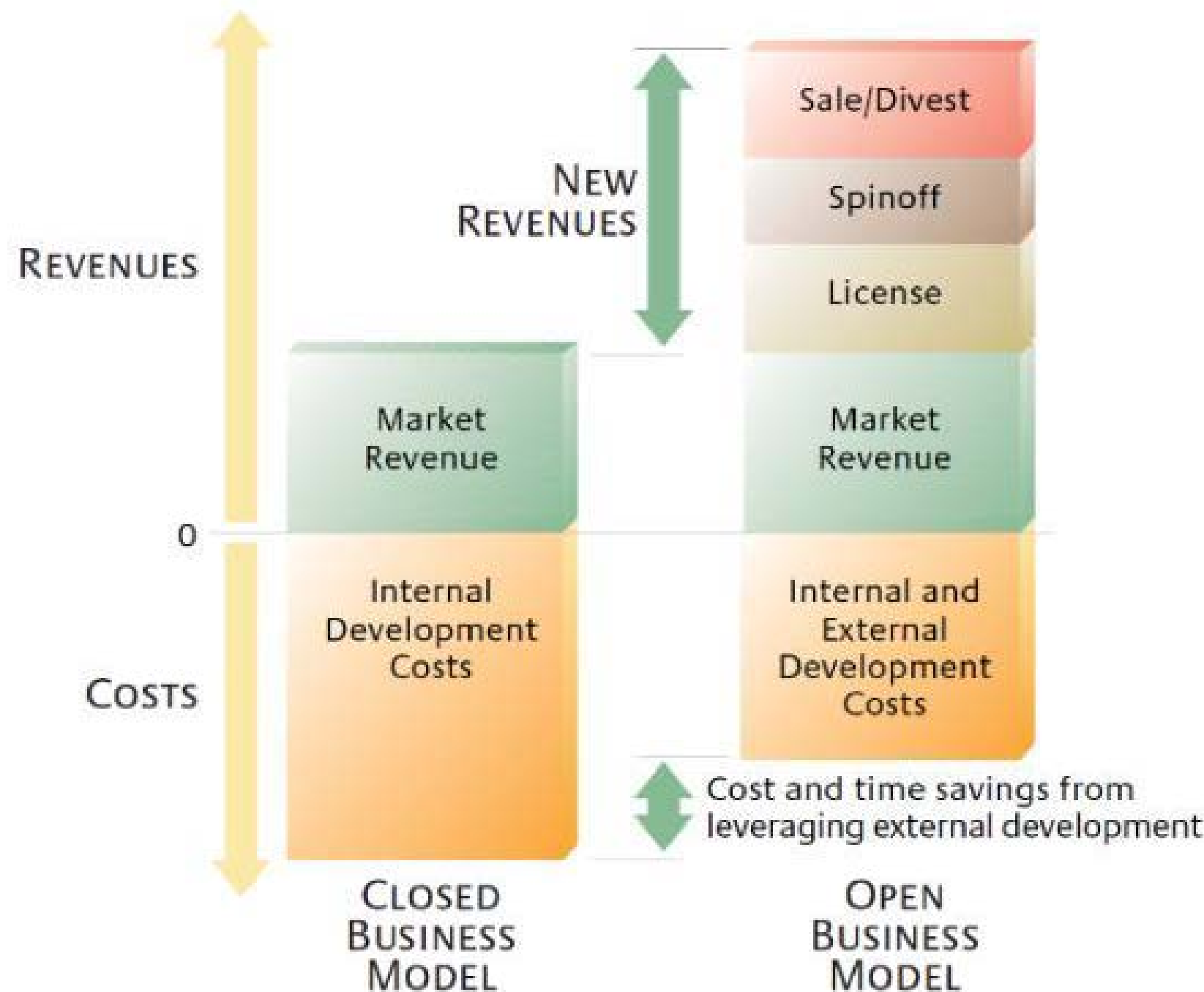
Building a better business model is often more important than getting to market first.

If we make the best use of internal and external ideas, we will win.

We should profit from others' use of our IP, and we should buy others' IP whenever it advances our own business model.

Different models

- allow a company to identify **false positives** (now from external as well as internal sources), it also enables the recovery of **false negatives**, that is, projects that initially seem almost worthless, but turn out to be surprisingly valuable



Conclusion

1. if your company is still in a close model, try to open it up, make use of the IP from others and profit from others' use of your IP
2. rage against the commercial dealers using 3D printing to infringe, but better not to sue your potential customers
3. use licenses to subdivide non-commercial infringing activities
4. develop multiple revenue channels, benefit from user innovation, and make them work for you!

Thank you!

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