Innovation- Across Boundaries

August 2022

Session XI

Alan Mumby

We've been considering…….

- what are the drivers for innovation – technologies and business
- the possible barriers to innovation
- that adopting a more innovative path brings increased commercial viability
- Using innovation management, to facilitate new products, processes and services.

but always from self contained in-house perspective -

Let's consider the following -

- collaboration and partnerships - with who and why ?
- the role of suppliers - what exactly is our relationship?
- customer or user-led innovation - is this manageable ?
- possible risks of sharing your innovation and the limitations…….?
- the potential shared benefits……..?

Innovation-
Across Boundaries

Innovation-
Across Boundaries

Do we need a genuine paradigm shift in our outlook ?

is there an unspoken rule that innovation should be kept ‘in-house’ ?

Is it more likely that innovation *could* involve other parties external to the company….?

Why Collaborate?

Firms collaborate for a number of reasons:

- To reduce the risk of development for market entry.
- To achieve scale of economies in production.
- To reduce the time taken to develop and commercialise new products.

- <u>Expertise, knowledge, skills, capabilities, know how etc.....</u>

Factors undermining closed innovation

Factors that are undermining the viability of this 'closed innovation' paradigm:

- The internet has made it much easier for companies and individuals to access knowledge and contact potential collaborators.

- People generally change jobs more often than they used to and they carry their knowledge away with them.

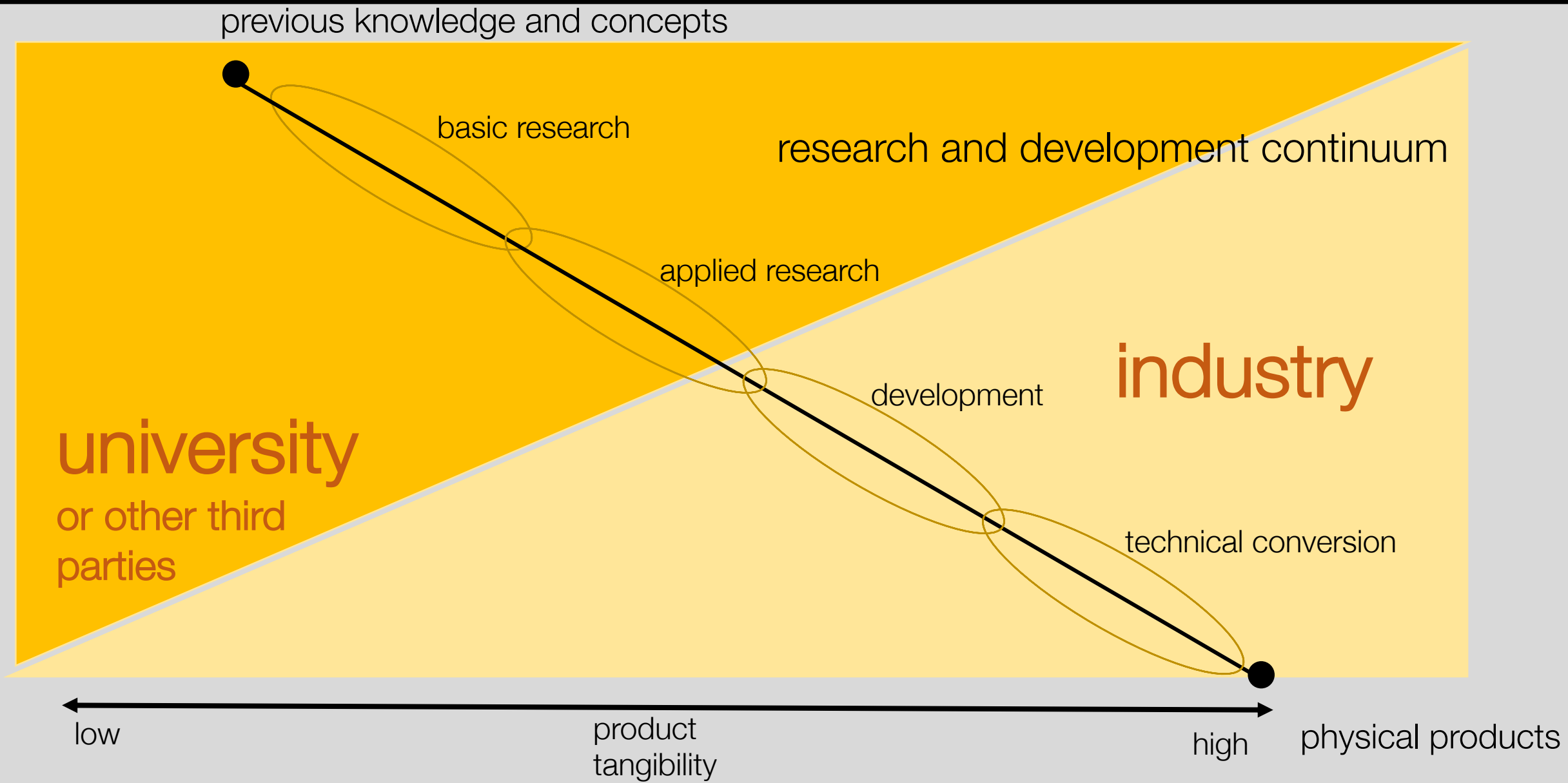
- The spread of industrialisation has produced a huge amount of small firms, developing new ideas and technologies all over the world.

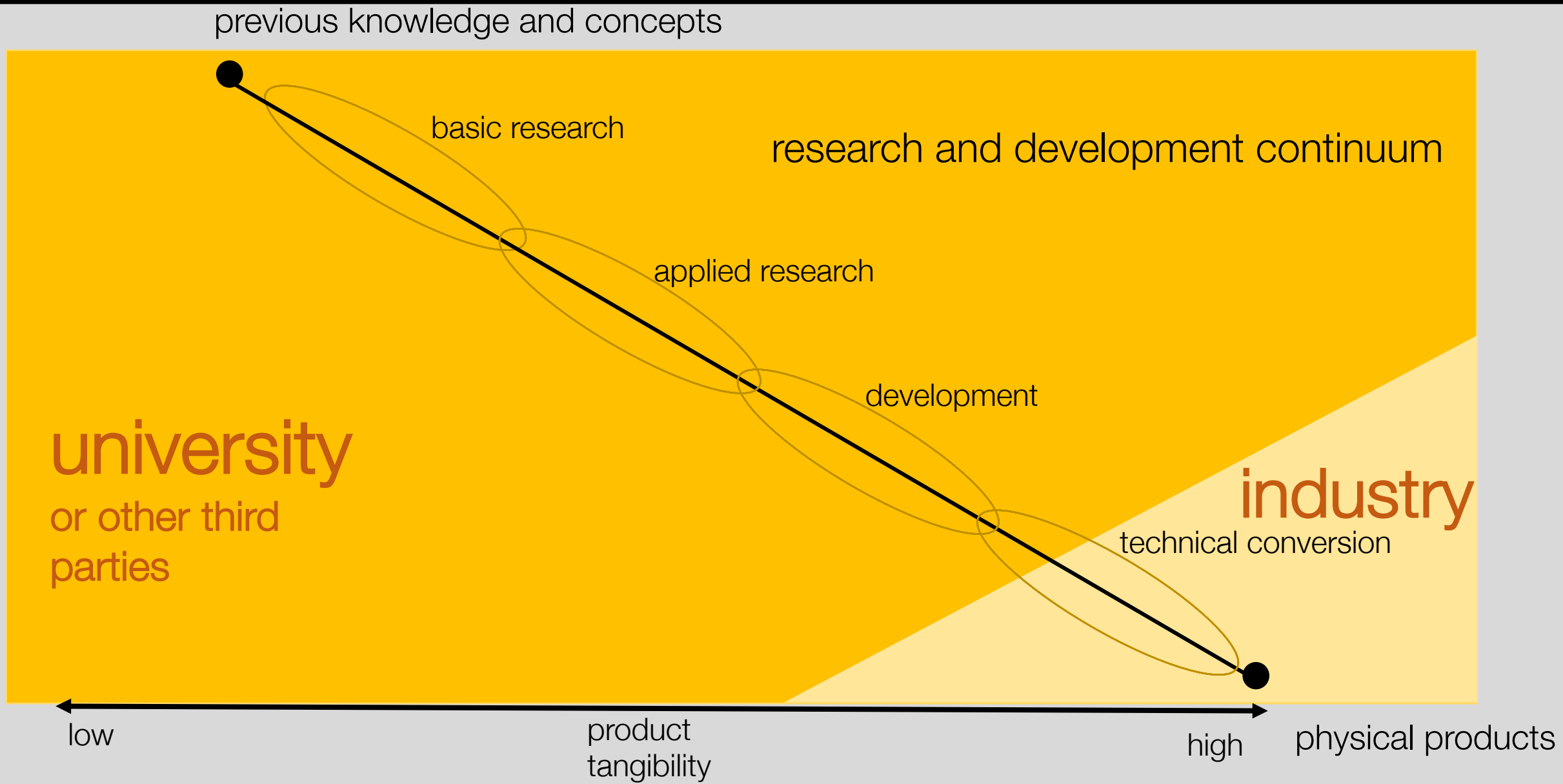
Factors that are undermining the viability of this 'closed innovation' paradigm cont'd:

- Financing for start-ups is much more readily available thanks to the rise of the venture capital industry.

- Universities and other third parties are much more willing to work with others to commercialise their ideas.

university or other third parties




previous knowledge and concepts
basic research
research and development continuum
applied research
development
university
or other third
parties
industry
technical conversion
low
product
tangibility
high
physical products

….. it’s part of their revenue stream

To advance or even just to maintain there place, companies need more and more input into their innovation……

a recognition that there is a need for more and more knowledge transfer

Open Innovation has been a source of revenue for the university sector for decades

The Universities offer knowledge and expertise in all areas of science and technologies…..

…. it’s their offer to industry….. it’s part of their revenue stream.

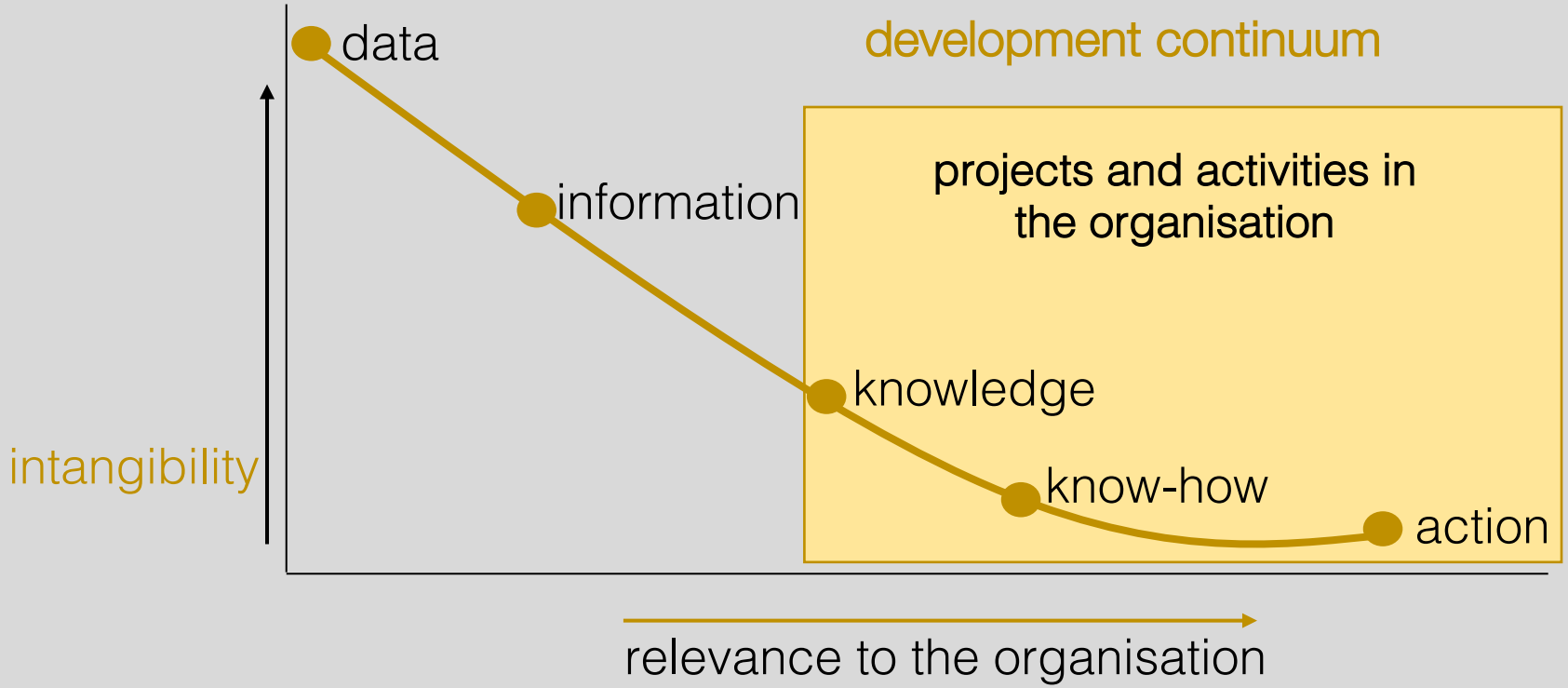
more information, knowledge and capabilities may lie outside of the company, which if harnessed could be useful….

increasing our knowledge

For innovation, it's information (knowing something), that then stimulates our understanding and increases our abilities, producing improved products processes and more lucrative business models

this knowledge transforms into

- Know-how
- Skills
- Expertise



Putting this into a practical commercial context;

It's the application of all this combined intelligence that leads to; actions, projects, processes, products, etc.

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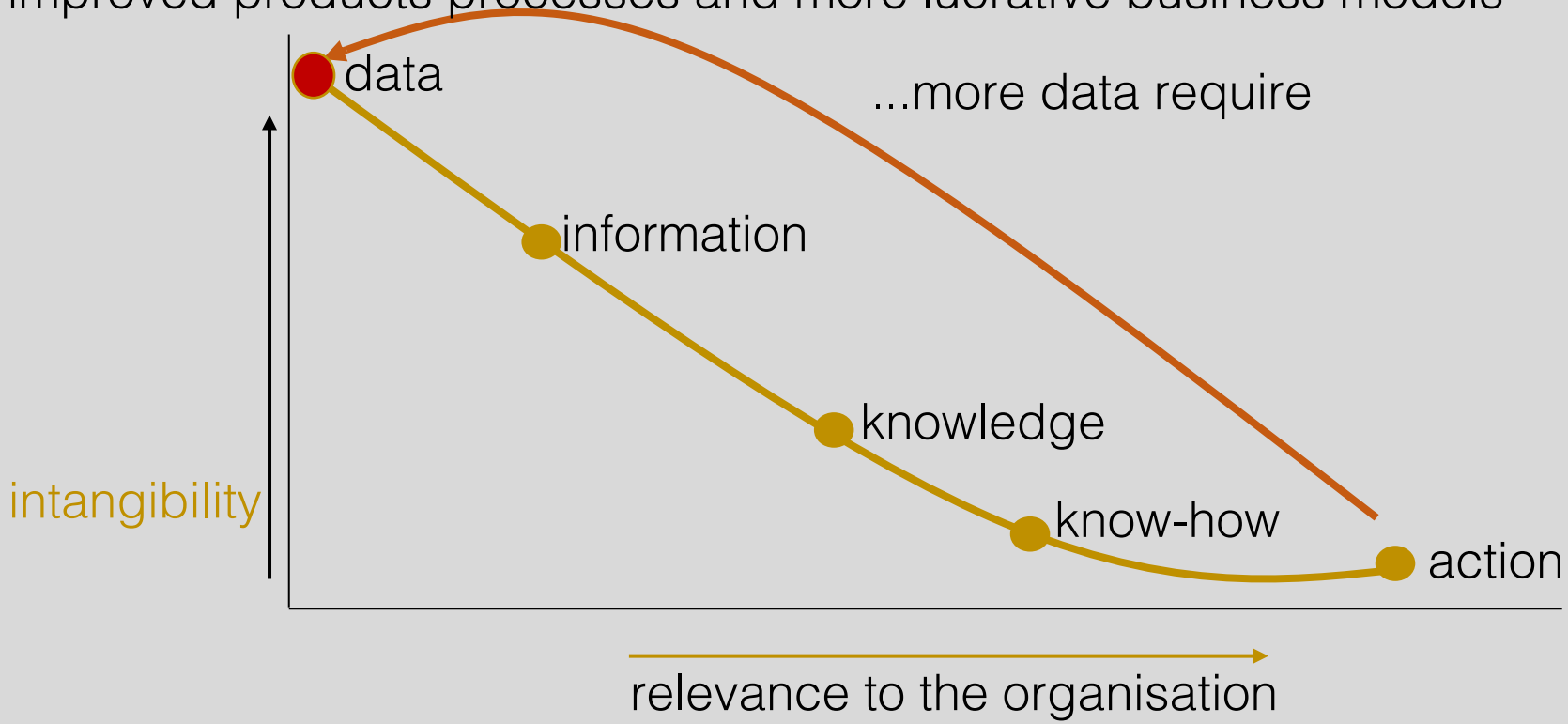

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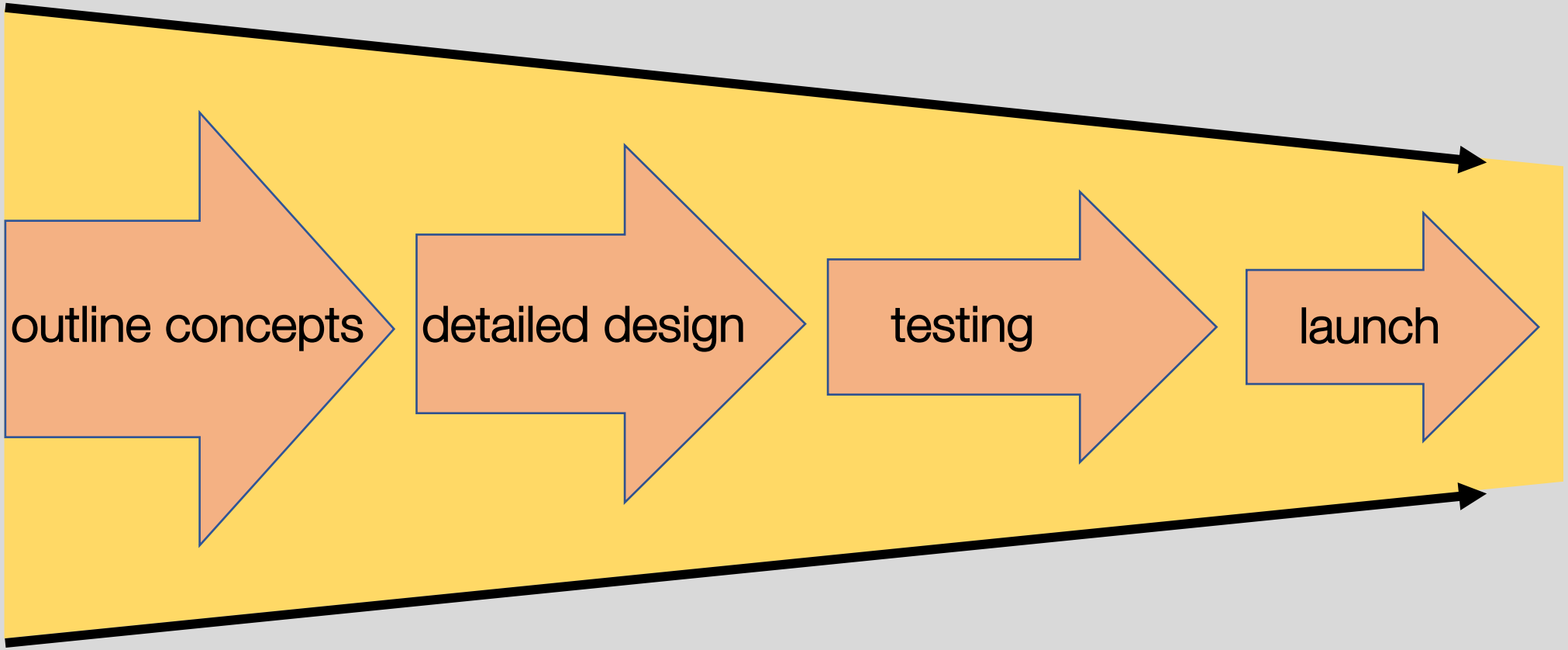
Innovation- closed or open ?

Closed Innovation Principles	Open Innovation Principles
Smart people in our field work for us	We might need to tap into the knowledge of individuals outside of the company
to profit from R&D we must discover, develop and make it ourselves	External R&D could create significant value; internal R&D is needed to claim a portion of that value
If we make discoveries ourselves it'll be us that gets it to market first	We don't have to originate the research or the development to profit from it
If we're the first to commercialise an innovation we're the winners !	Building a better business model is better than getting to market first.
If we create the most –and best ideas in the industry, we will be winners !	If we make the best of both the internal and external ideas we're more likely to win.
We should control our IP so that our competitors don't profit from our ideas	We should profit from others' use of our IP – and we should buy others' IP whenever it advances our own business model

The innovation tunnel



…….The innovation tunnel

‘innovation funnel’ – a roadmap which helps make (and review) decisions about resource commitment.

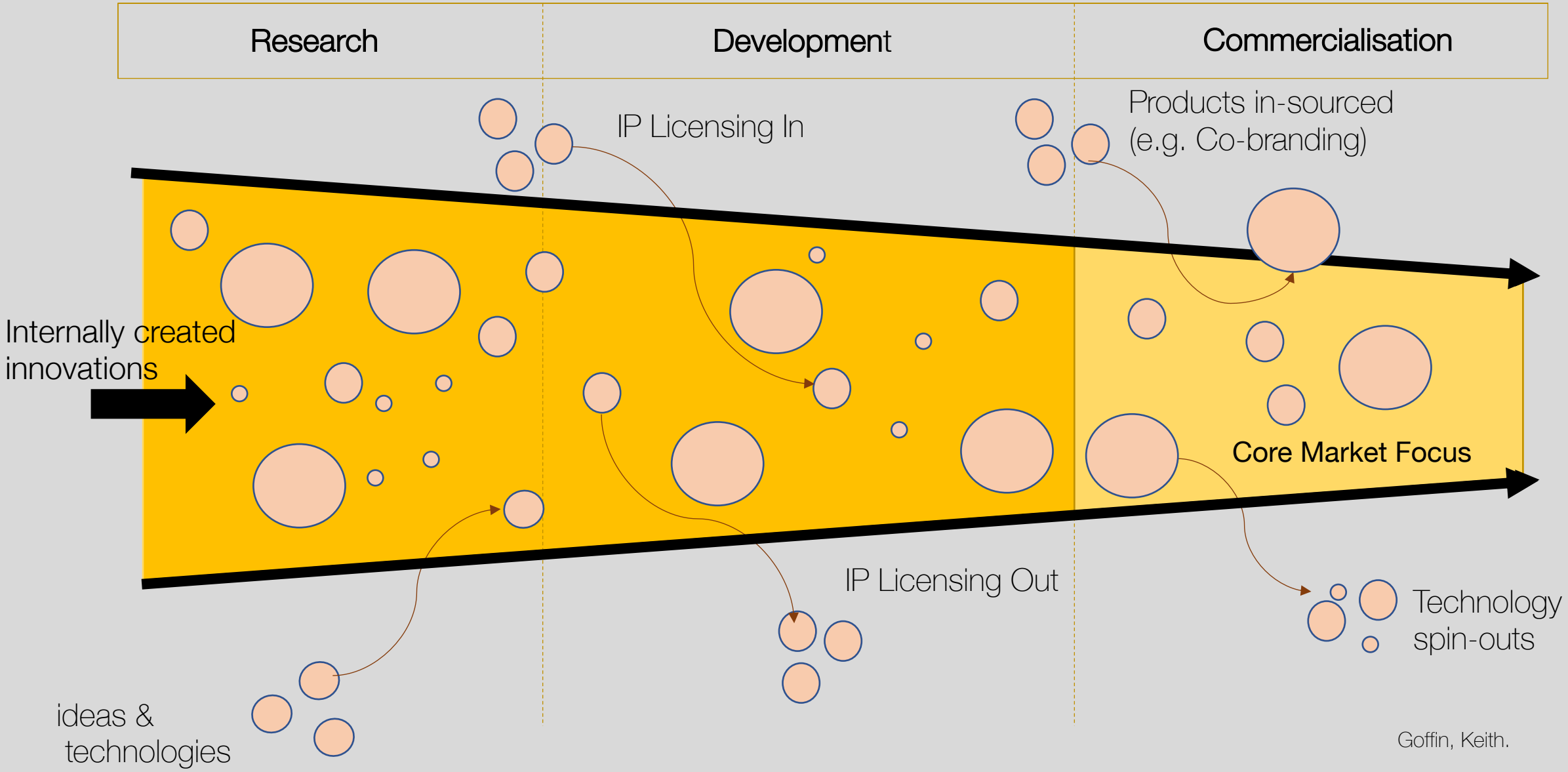
Joe Tidd. 2013

The innovation tunnel

With open innovation, the innovation funnel is porous with ideas and technologies potentially entering and leaving at any point.

Goffin, Keith.

The open innovation tunnel



Goffin, Keith.

Open Innovation

With / OI Mode	One other company	Several parties/ business models unchanged	Multiple parties/new business models	Individuals
Open Innovation Outside ➡ in	We buy IP from another organisation for exclusive use, e.g. patent licensing	We buy IP from several others for its products, e.g. Microsoft Xbox	We use others' IP to develop a new business, e.g. Apples iPod and iTunes store	We invite ideas from individuals, e.g. crowd sourcing; authors working with publishers
Open Innovation Inside ➡ out	We sell IP we don't need, or transfers to spin off e.g. exclusive patent licensing; corporate incubators – Philips, BT, etc.	We transfer IP to several others to use in their products, e.g. non-exclusive licensing of CD patents to equipment makers	We make IP available to others to develop a new business, e.g. IBM and Linux	No known examples
Open Innovation Coupled	Companies collaborate, each giving IP to the other for their own products or services, e.g. Sony and Philips developing the CD	Several companies collaborate to develop new opportunities for their products, e.g. games consoles and games; Uber	Collaboration leads to an innovation not owned by either party but of value to both, e.g. open source software	We collaborate with skilled individuals to improve product, e.g. Lego Mindstorms

Open Innovation

Reasons ?	Examples
Improved access to capital and new business	European Airbus to enable companies to compete with Boeing and MacDonnell Douglas
Greater technical critical mass	Alliance (LG Philips) between Philips of The Netherlands and LG Electronics of Korea. Provides access to Philips' technology and lower manufacturing costs in Korea.
Shared risk and liability	Sony-Ericsson, a joint venture between two electronics firms to try and dominate mobile phone handset market
Better relationships with strategic partners	European Airbus
Technology transfer benefits	Customer-supplier alliances, e.g. VW and Bosch
Reduce R&D costs	GEC and Siemens 60/40 share of telecommunications joint venture

Supplier Relations

Many firms have established close working relations with their suppliers and, without realising it, may have formed an informal alliance. Usually, these are based on cost-benefits to a supplier. For example:

- lower production costs that might be achieved if a supplier modifies a component so that it 'fits' more easily into the company's product;
- reduced R&D expenses, based on information from a supplier about the use of its product in the customer's application;
- improved material flow brought about by reduced inventories, due to changes in delivery frequency and lot sizes;
- reduced administration costs through more integrated information systems.

Assembling the component parts to make an iPhone

Company	Country	Part
Samsung	Korea	CPU video processing chips
Infineon	Singapore	Baseband communications hardware
Primax Electronics	Taiwan	Digital camera modules
Foxconn International	Taiwan	Internal circuitry
Entery Industrial	Taiwan	Connectors
Cambridge Silicon	Taiwan	Bluetooth chip sets
Umicron Tech	Taiwan	Printed circuit boards
Catcher Technology	Taiwan	Stainless metal casings
Broadcom	USA	Touchscreen controllers
Marvell	USA	802.11 specific parts
Apple	Shenzhen China	Assembly; stocks; packs; ships

MERCK

(It's) Not just the 30 people in our lab,

(A Senior Research Manager at Merck Pharmaceuticals PLC).

Goffin, Keith. Innovation Management (p. 60)

William Joy of Sun Microsystems said simply:

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.....nice case study on Moodle

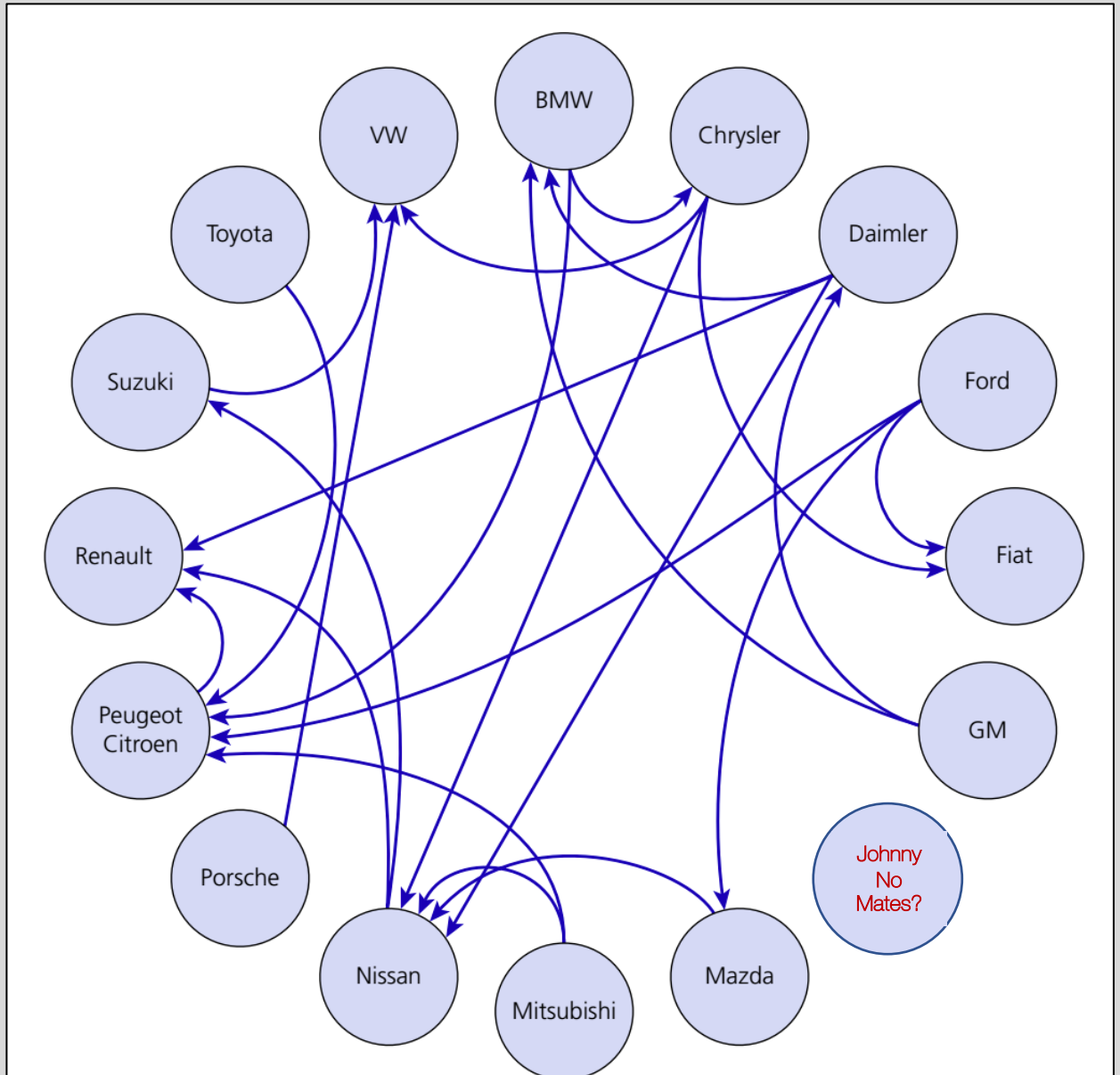
Microsoft started work on the Xbox games console in early 1999. It was a response to the perceived threat that the TV would acquire processing and communications capabilities and eventually displace the PC and with it Microsoft's flagship 'Windows' operating system.

Gates later said that in the strategic picture Microsoft needed twin pillars, with 'a PC in the den and an Xbox in the living room'. The project was a combination;

1. of top-down direction from Bill Gates and his team,
2. and a bottom-up initiative from games enthusiasts in the company.

Innovation- Across Boundaries

The tangled web of alliances between car manufacturers



“Innovation across Boundaries”

Innovation in isolation? keeping everything in the company, is this possible…?

as individuals or groups….

Consider the following -

- collaboration and partnerships - with who and why ?
- the role of suppliers - with who and why ?
- customer or user-led innovation - is this manageable ?
- possible risks of sharing your innovation and the limitations…….?
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Collaboration and partnerships - with who and why ?

According to Trott there are eight generic types of strategic alliance:

1. licensing
2. supplier relations
3. outsourcing
4. joint venture
5. collaboration (non-joint ventures)
6. R&D consortia
7. industry clusters
8. innovation networks

Trott, Paul. Innovation Management and New Product Development (p. 271).

Further reading

Tidd & Bessant

Chapter 10 (p461)
Exploiting open Innovation and collaboration

Paul Trott

Chapter 11 (p378)
Open innovation and technology transfer

Goffin & Mitchell

Chapter 2 (p60)
Open Innovation