

INTRODUCTION TO INNOVATION MANAGEMENT SESSION IV - ASSESSMENT A

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Team Powys

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OBJECTIVE

Demonstrate a systematic understanding of the key elements contributing to successful innovation management processes.

Review the recent innovation history (five to ten years) of a company and categorise the innovation development as per Greg Satell's typology. Analyse them in relation to;

- The extent they have shifted their market position
- How have they influenced the internal structures and management processes
- Dependence on technology
- The outcome of the innovation

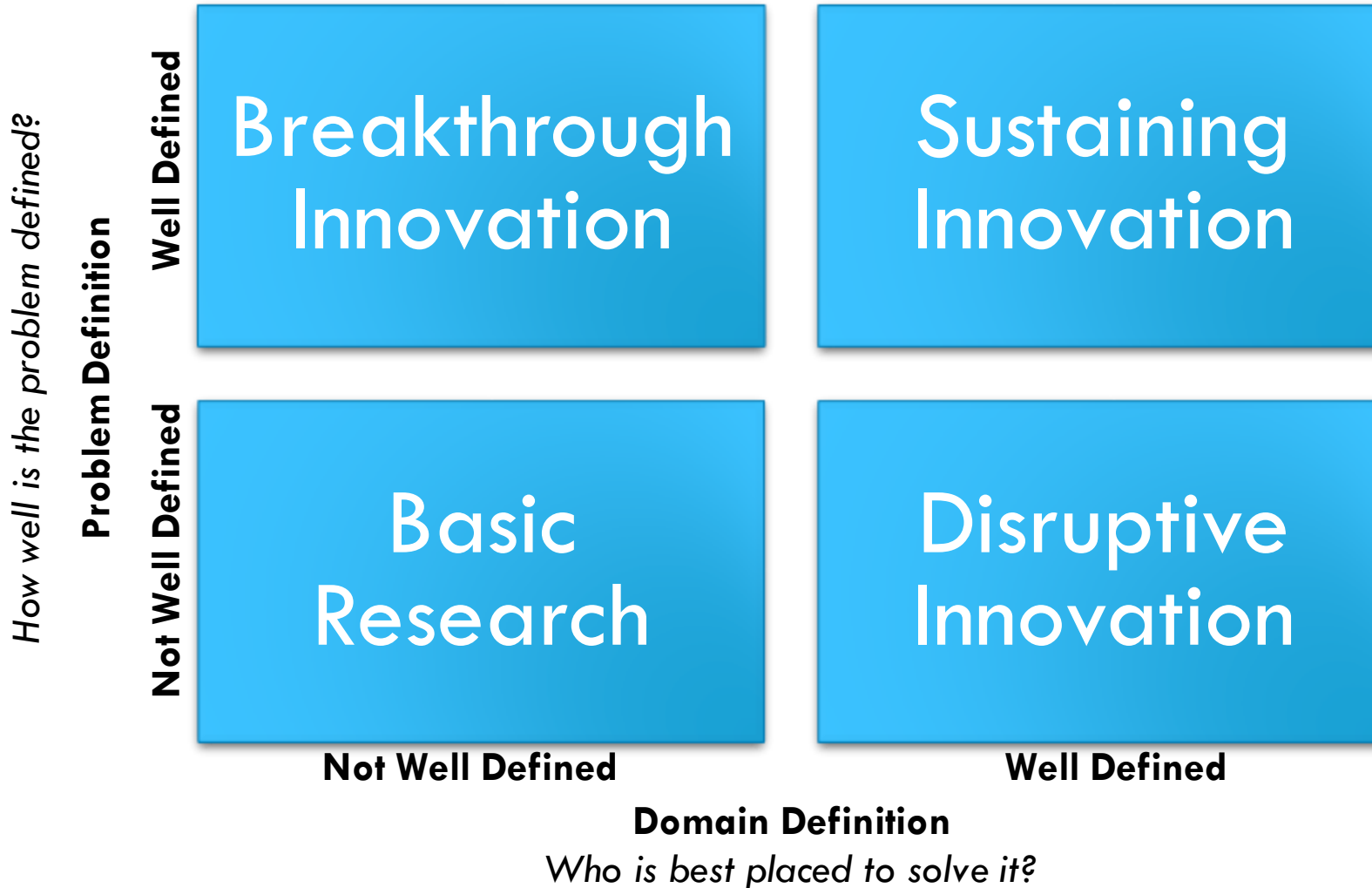
dyson

INNOVATION PLAYBOOK

Six principles;

1. Actively seek out good problems
2. Choose problems that suit the organisations capabilities, culture and strategy
3. Ask the right questions to map the innovation space
4. Leverage platforms to access ecosystems of talent, technology and information
5. Build a collaborative culture
6. Understand that innovation is a messy business

THE INNOVATION MATRIX



The matrix helps assess how to map innovation by looking at;

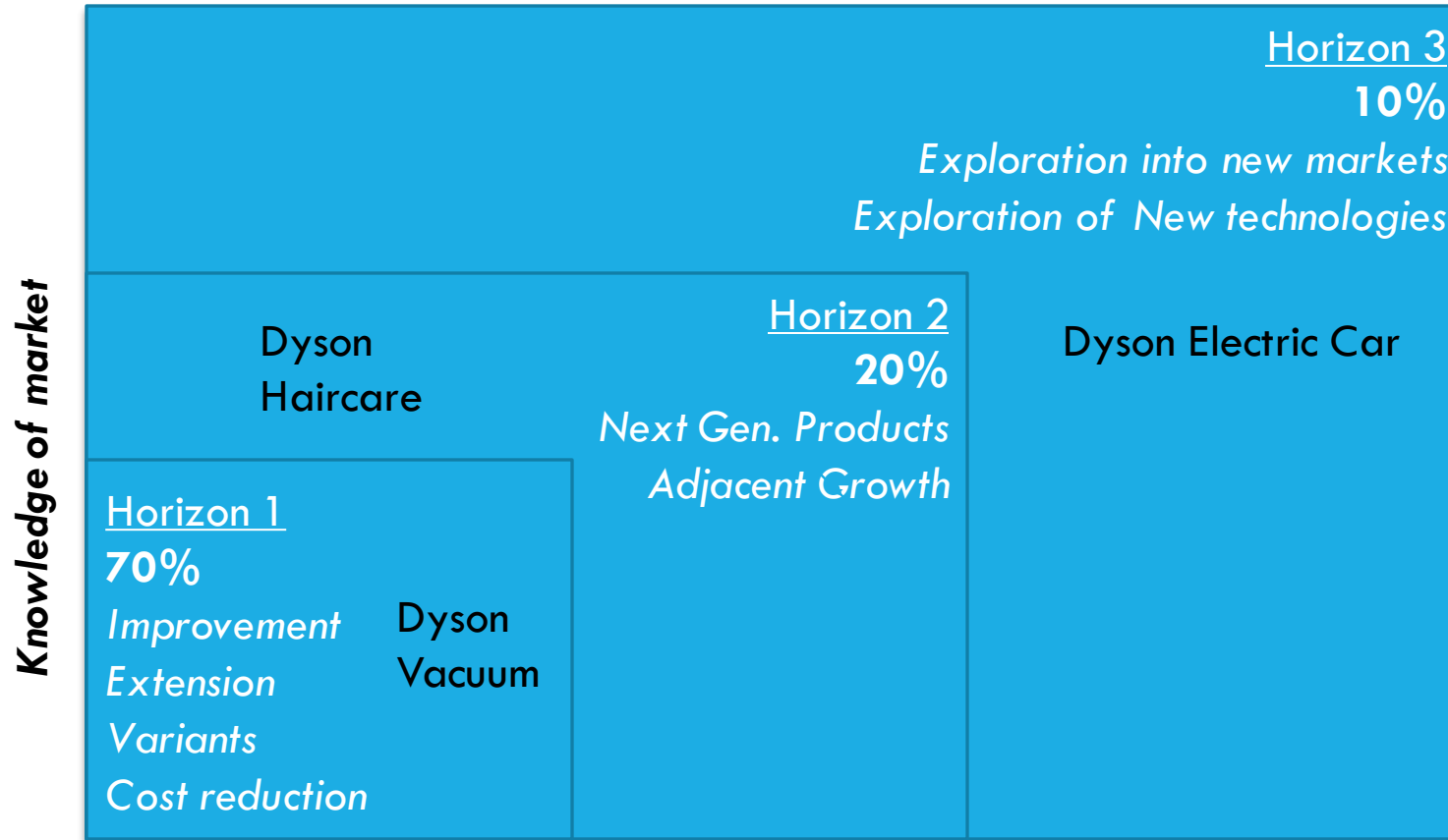
1. How well the problem is defined
2. How well the domain is defined.

THREE HORIZONS MODEL

New Market

Existing market that
we do not serve

Existing market that we
currently serve



Knowledge of Technology

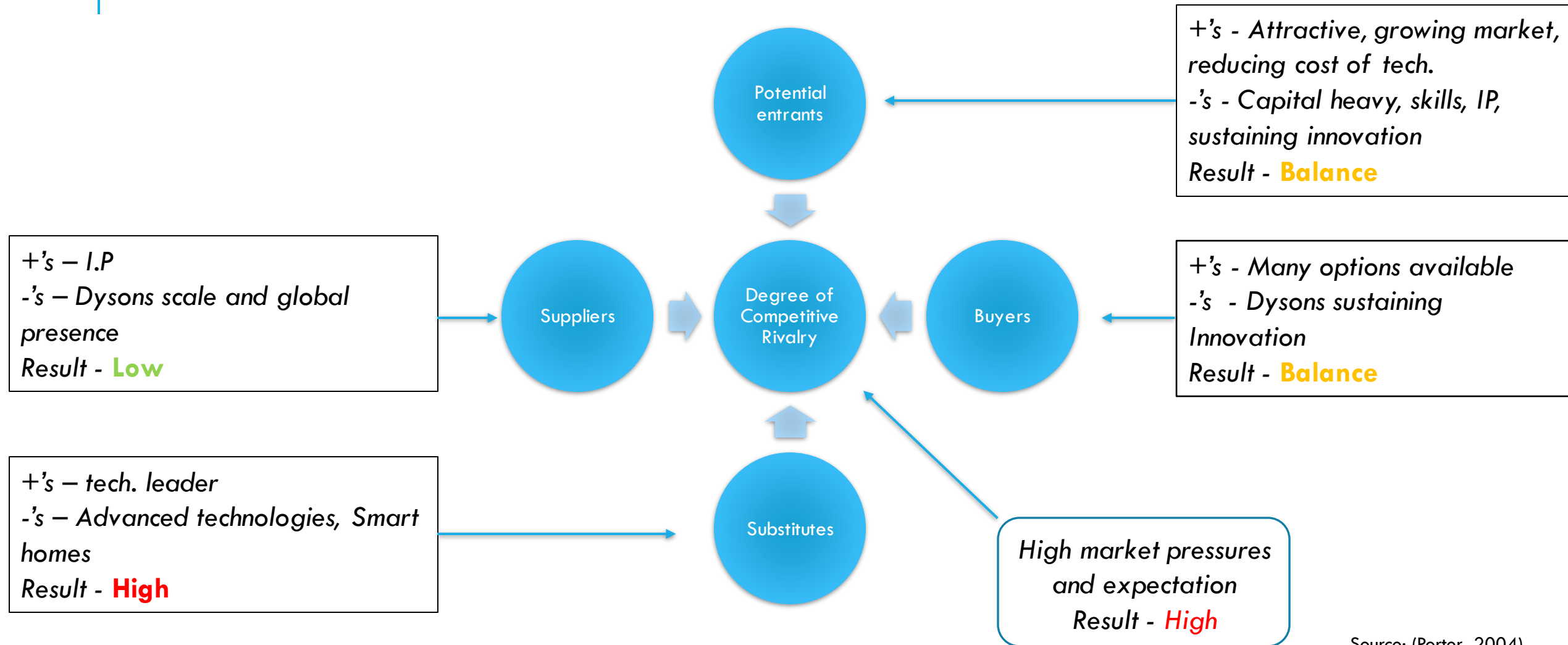
Source: (Baghai, Coley and White, 1999)

Existing technology
that we currently use

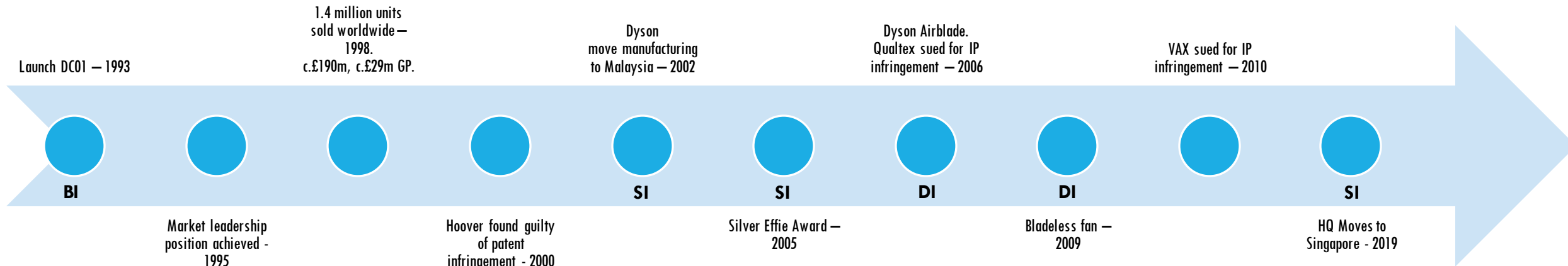
Existing technology
that we do not use

New technology

PORTERS FIVE FORCES



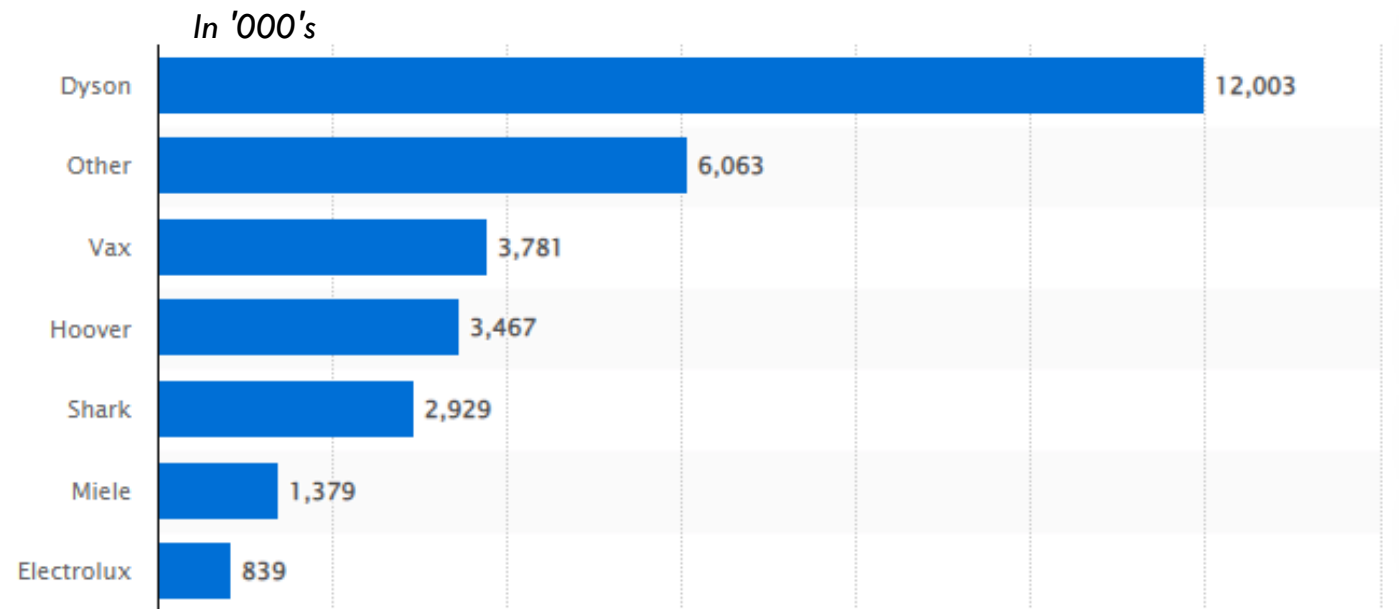
TO WHAT EXTENT HAVE THESE INNOVATIONS SHIFTED DYSONS MARKET POSITION?



Key

- BI** — Breakthrough Innovation
- SI** — Sustaining Innovation
- DI** — Disruptive Innovation

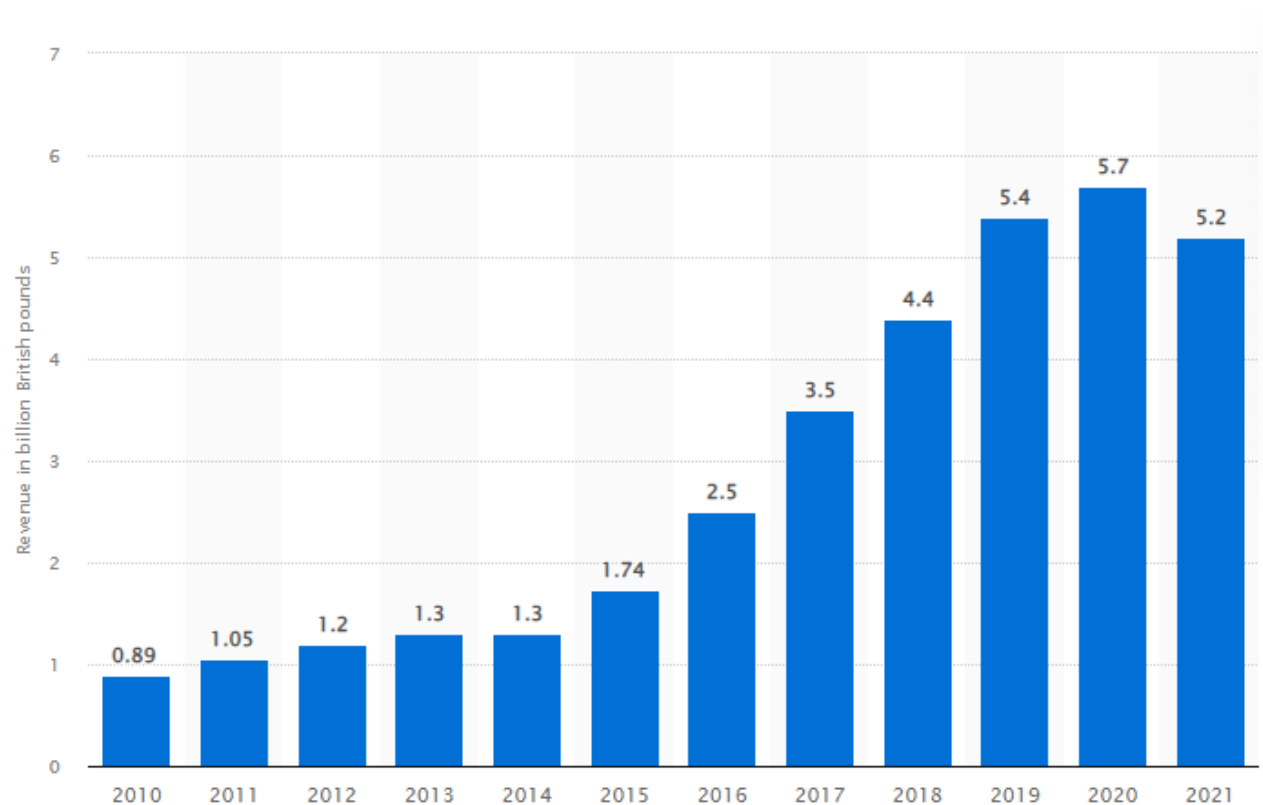
BRANDS OF VACUUM CLEANERS RANKED BY NUMBER OF USERS IN GB, 2020



Dyson, by far, the most popular brand.

Estimated 12m people use Dyson products in 2022.

ANNUAL REVENUE OF DYSON LTD WORLDWIDE FROM 2010 TO 2021



In 2020, Dyson posted revenues of c.£5.7bn

- an increase of c.£1bn compared to previous year.

- growing middle class consumers in Asia.

Dyson invested c.\$3.7bn to double its product range by 2025.

TO WHAT EXTENT HAVE THEY INFLUENCED DYSONS INTERNAL STRUCTURE AND MANAGEMENT PROCESSES

Dyson operate an open team structure workforce where employees are encouraged to talk with colleagues from different disciplines to generate ideas and sustaining (Vacuum Cleaners), disruptive (Haircare & Wearables) and research innovation (Floorcare Lab). He sincerely believes this innovation cross-pollination of employees from all seniority levels works and it's hard to argue with the results given the companies renown in innovation.

Dyson is aware and practices the concept of frugal innovation or "jugaad" especially evident when using cardboard to make early cyclonic generating cones used in the first prototype vacuum cleaners. All ideas are actively encouraged from simple to complex solutions to problems (Dyson, 2003). Prototyping remains a core tool for Dyson and many iterations remain in sustaining improvement innovations.

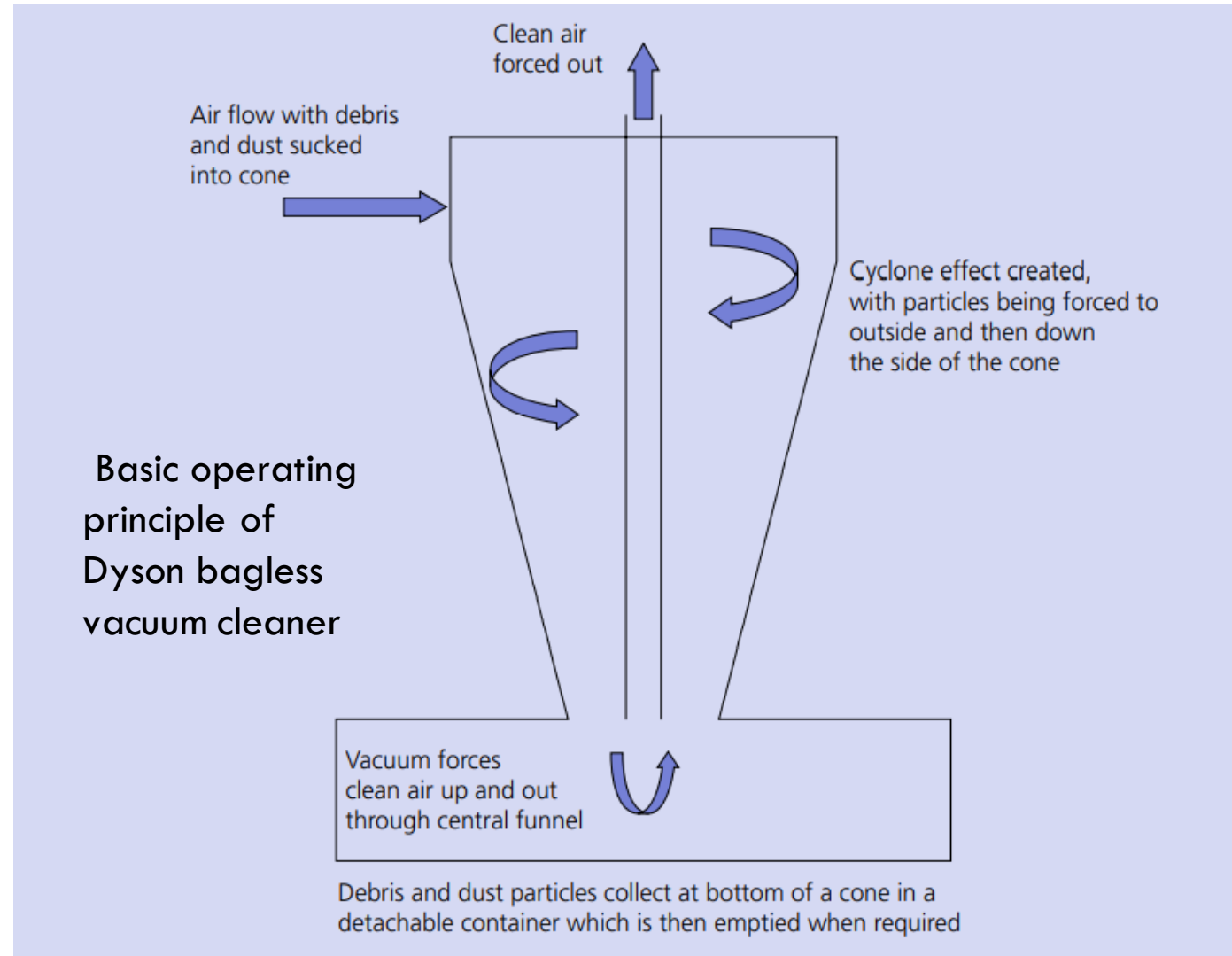
In 2007 Dyson opened the first in-house lab of a floorcare manufacturer. They wanted to analyse the dust to understand what it was made up of. The outcome of this was the development of filters and seals to help emit clean air from the cleaners (Dyson, 2022).

HOW HAVE DYSON BEEN TECHNOLOGY DEPENDENT?

Cyclone Separation (CS) technology first patent 1885 (Dyson, 2018).

Dyson's application of CS for domestic vacuum cleaner came after becoming frustrated (in 1979) with his home vacuum and a late visit to an industrial sawmill where he saw dust extraction equipment using (Dyson, 2003).

After 3 years of development, 5,127 prototypes and 2 years of trying to license Dyson finally launched the G-Force in Japan (Trott, 2017).



Source: (Trott, 2017)

HOW HAVE DYSON BEEN TECHNOLOGY DEPENDENT?

The first autonomous robotic vacuum cleaner was developed by Electrolux in 1996, but there were control issues, left areas uncleaned, and regularly collided with objects.

Dyson's first entry into the robotic vacuum market started in 2000 with the DC06 but by 2003 it was shelved as it was too costly. After 16 years of research, they launched the 360 Eye robot vacuum using a vision system. It took 16 years for the hardware and software advances to reduce the costs and make the 360 Eye commercially viable (Dyson, 2022).

In 2020 the Heurist 360 was launched in the UK.



Heurist 360

OUTCOME OF THE INNOVATION

Dyson's decision to use then complicated systems (90 sensors) in its' robotic vacuum to detect obstacles whilst navigating rooms instead of simpler reduced sensor arrays effectively made the DC06 too expensive to compete with manufacturers adopting the simpler sensors setups. The decision to use the high number of sensors in the DC06 proved to be a mistake, and the continued design decision to continue resulted in 16 years of non-participation in the growing robot vacuum market (Dyson, 2022).

The 360 Eye and Heurist vision system design could prove to be the dominant navigation type going forward as the cost of cameras with embedded object recognition along with AI mapping software used to optimise room navigation has significantly reduced. The problem for Dyson is that software and hardware for vision systems is not propriety unlike the cyclonic separation used in the hugely successful non-robotic vacuum cleaners.

Another advantage of the vision system is that it could be incorporated into smart homes to detect vulnerable people who have fallen or become incapacitated and alert family and / or authorities to this situation.

Charmed Labs
Pixy2 Robot Vision
Image Sensor

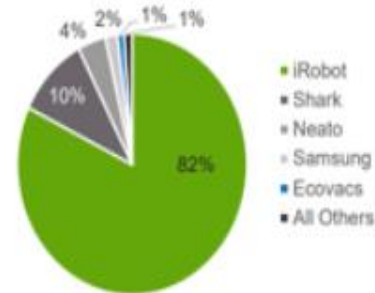


OUTCOME OF THE INNOVATION

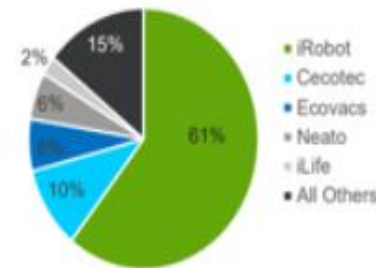
Other companies used simpler position detection sensors. In 2002 iRobot, an advanced technology company launched the Roomba which was well received and could detect obstacles, dirty areas and drops preventing it from falling downstairs using ultrasound and bump sensors. iRobot now manufacture autonomous Vacuum cleaners, floor mops and 2 in 1 combination Vacuum / Mops and are the current market leaders.

2018 Robotic Vacuum Segment: Global Retail \$ Share

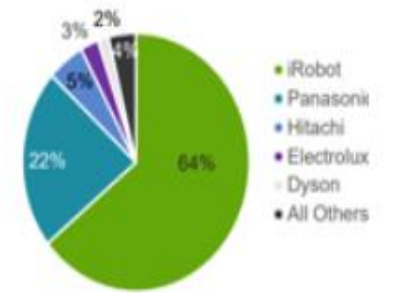
North America - \$809M



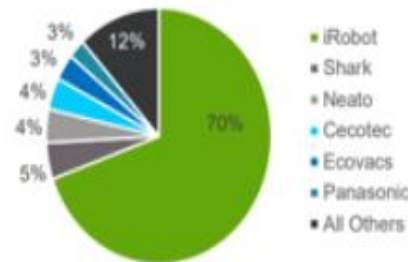
EMEA - \$706M



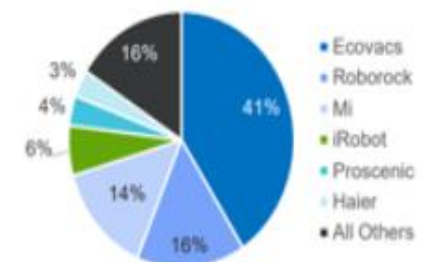
Japan - \$187M



Global (excl China) - \$1785M



China - \$705M



Source: 2018 NPD, GfK, and iRobot internal estimates; RVC+ >\$200 retail prices; includes China Online

March 2019

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QUESTIONS?

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KEY LEARNINGS

Carl Jones – Insight into how highly innovative individuals / companies continuously sustain and embed innovation into the core of their enterprises.

Define the problem so the innovation route is as straight as possible.

"After the idea, there is plenty of time to learn the technology." - James Dyson

Simon Bosley – Realising the importance of collaboration - "Many eyes make all bugs shallow". A problem shared is a problem halved.

The importance of really understanding and honestly and accurately answering the first two questions.

That innovation is never a singular event, paradigm shifts are difficult, requiring effective change management.

The innovation playbook and the business model canvas frameworks



OUTLINE OF CONTRIBUTION

Carl Jones – 11 - 15

Simon Bosley – 1 - 10