

Medium-size Me! - Qualitative Perspectives on Open innovation in Welsh medium-sized enterprises

John Barker

Doctoral Researcher

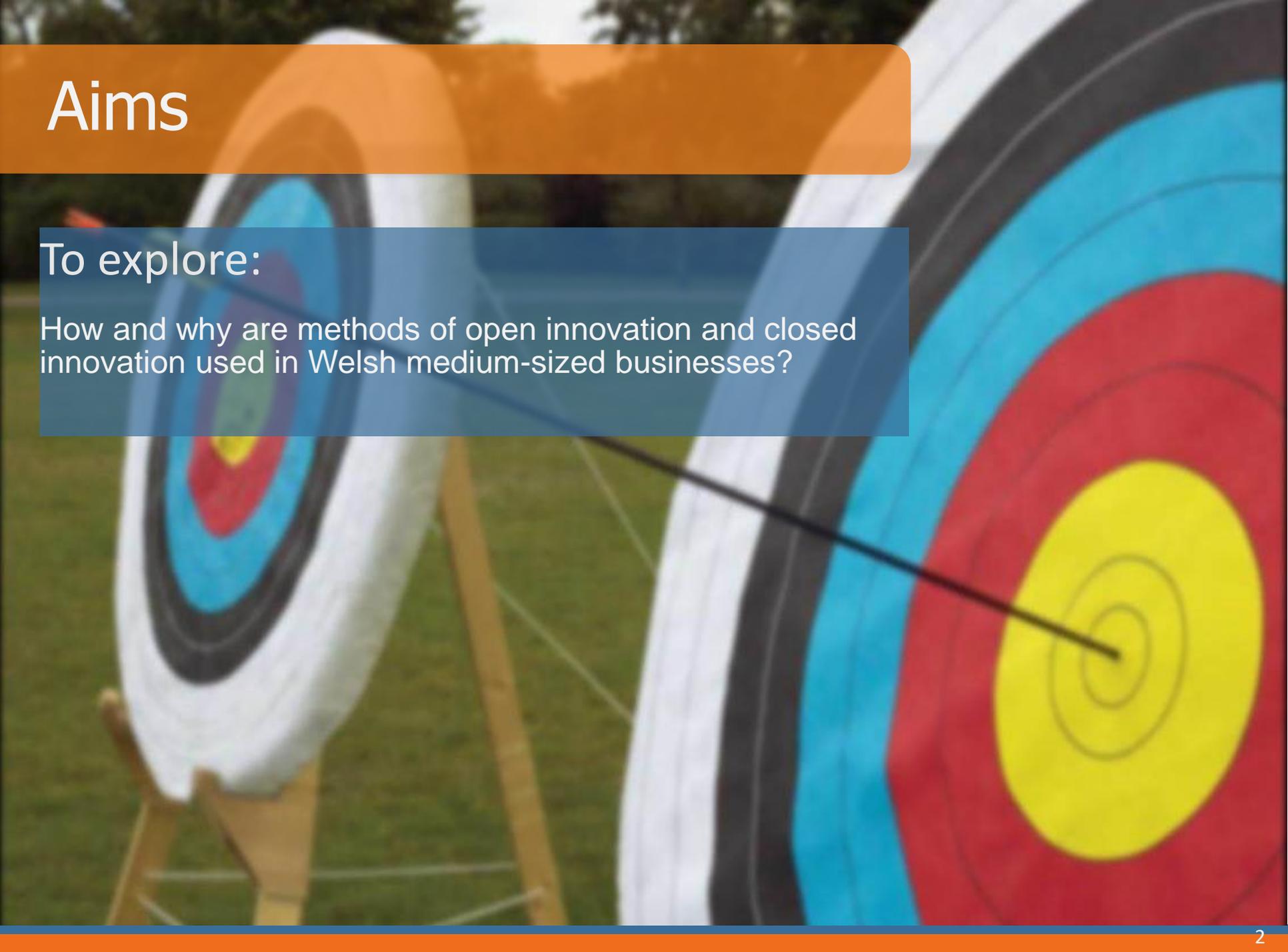
Professor Nick Clifton (Director of Studies) Professor Gareth Loudon (2nd Supervisor)



Cardiff
Metropolitan
University

Prifysgol
Metropolitan
Caerdydd

Aims



To explore:

How and why are methods of open innovation and closed innovation used in Welsh medium-sized businesses?

Innovation in medium-size enterprises – What and Why?



“We want to increase the number of grounded firms in Wales and establish a firm base of medium sized Welsh firms which are capable of selling outside Wales but have decision making rooted firmly in our communities.”

Lee Walters, AM Deputy Minister for Economy and Transport (2019)

Chartered Business Institute (CBI) – (2011) ‘Future champions Unlocking growth in the UK ’ s medium-sized businesses

Federation of Small Business (FSB) – (2017) ‘*WALES ’ MISSING MIDDLE’*

Development Bank of Wales – (2019) Medium-sized businesses and Welsh business structure

The background of the slide is a grayscale image of numerous stacks of books, creating a textured, layered effect. The books are of various sizes and are piled up, filling the entire frame.

**“Innovation...accounts for
25-50% of labour
productivity growth”
(Baughan, 2015)**

Why? | Theoretical underpinning

Focus on beneficiaries of open innovation which tend to be **large corporates**

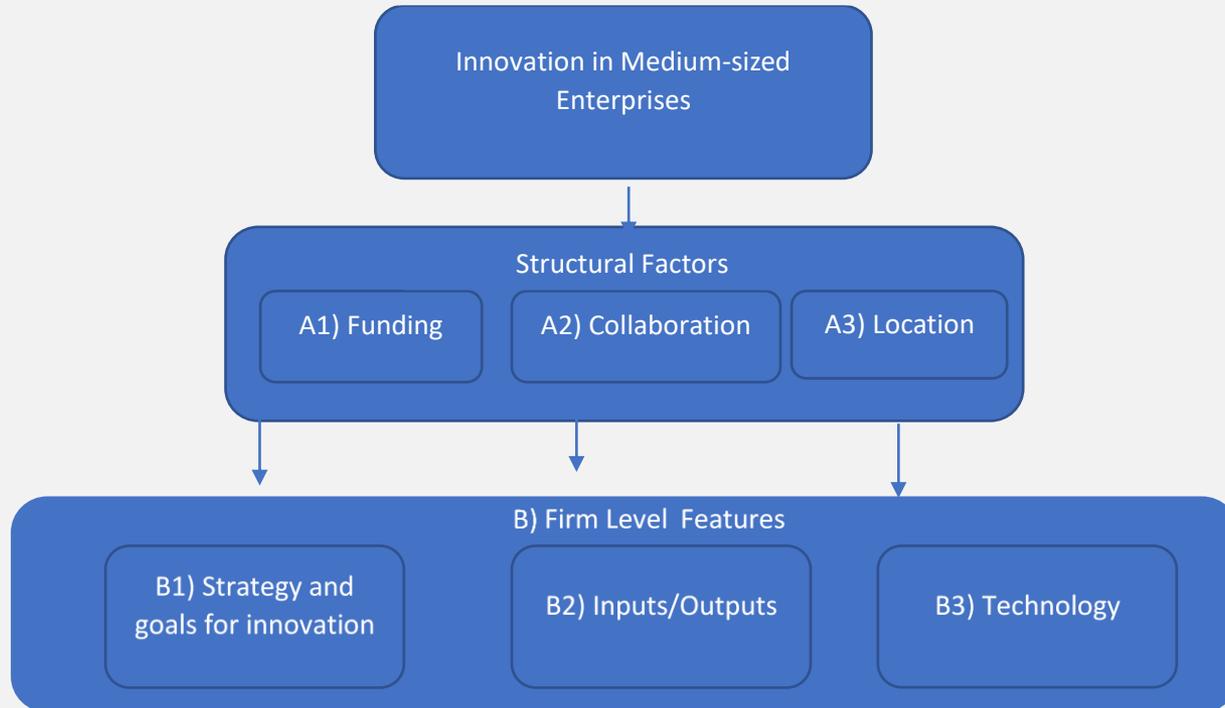
(see Mortara and Minshall, 2011; Bervanakis and Dešić, 2013; Brunswicker and Chesbrough, 2018)

Focus on engine/provider of the open innovation which tend to be **SMEs/academia**.

(see Usman and Vanhaverbeke, 2017a; Santoro *et al.*, 2018)

Literature on **Welsh medium-sized enterprises** is scarce
(Rhisiart *et al.*, 2014)

Qualitative Research: Conceptual Framework



Methods

Semi-structured interview method:

Allows exploration of concepts and ideas that participants offer as part of the process. (Easterby-Smith et al., 2018, p. 185).

“Opinions to emerge” and gain greater insight” (Saunders, M.N.K., Lewis and Thornhill, 2019, p. 375).

Part of wider study with respondents drawn from companies surveyed

Sample

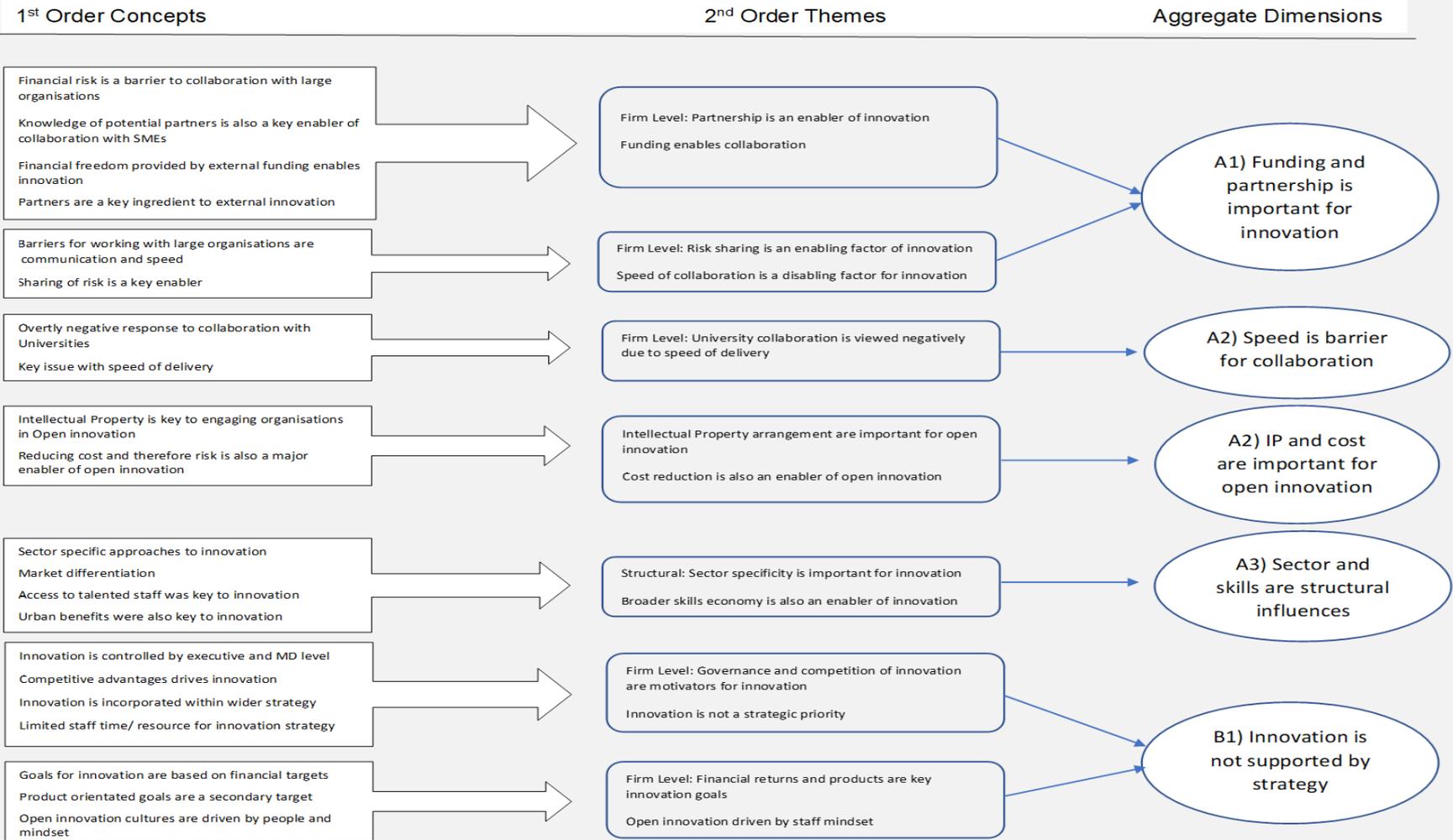
Company Name	NUTS2	Industry/Commerce	Employee Number	Employee Number Category	Business-2-Business (B2B)/ Business-2-Consumer (B2C)	Innovation Method
Participant 1 - Manufacturing - (PT1M)	East Wales	Industry	73	50-99	B2B	Both open and closed innovation
Participant 2 - Financial Services (PT2FS)	West Wales	Commerce	183	150-199	B2B	Both open and closed innovation
Participant 3 - Manufacturing (PT3M)	East Wales	Industry	212	200-249	B2B	Both open and closed innovation
Participant 4 - Education - (PT4E)	East Wales	Commerce	157	150-199	B2C	Both open and closed innovation
Participant 5 - Construction (PT5C)	West Wales	Industry	142	100-149	B2B	Both open and closed innovation
Participant 6 - Manufacturing (PT6M)	West Wales	Industry	55	50-99	B2C	Both open and closed innovation
Participant 7 - Manufacturing (PT7M)	East Wales	Industry	190	150-199	B2B	Both open and closed innovation
Participant 8 - Manufacturing (PT8M)	West Wales	Industry	122	100-149	B2B	Both open and closed innovation
Participant 9 - Information and communication (PT9IC)	East Wales	Commerce	126	100-149	B2B	Closed innovation
Participant 10 - Manufacturing - (PT10M)	West Wales	Industry	215	200-249	B2C	Closed innovation
Participant 11 - Education (PT11E)	East Wales	Commerce	82	50-99	B2C	Open innovation
Participant 12 - Education (PT12E)	East Wales	Commerce	74	50-99	B2B	Closed innovation
Participant 13 - Manufacturing (PT13M)	West Wales	Industry	248	200-249	B2C	Closed innovation

Question Bank

Question/Theme	Literary/Research Question (RQ) Link(s)	Chapter 5: Quantitative Study
Q1 – Firm level definitions of open and closed innovation	Concepts of open/closed/mixed (H. Chesbrough, 2003) and outbound/inbound innovation (Dahlander and Gann, 2010; Bianchi <i>et al.</i> , 2011) are tested for industry relevant. RQ2	
Q2 – Q4 Strategy and innovation	(Mortara and Minshall, 2011, p. 588) (Oltra, Luisa and Alfaro, 2018, p. 817)	75% of respondents to the survey indicate that they don't have an operationalised strategy for innovation.
Q5-6 Technology as a driver of innovation	Rhisiart <i>et al.</i> (2014, p. 40) and Lichtenthaler, (2008)	Statistical analysis of data from Q19 of the quantitative survey illustrated a positive relationship between companies setting goals for innovation and technical development.
Q7 Innovation Goals/Culture of Innovation	Amabile (1988, p. 152)(Mortara and Minshall, 2011, p. 588)	
Q8 – Why do you use a particular method of innovation	Rhisiart <i>et al.</i> (2014, p. 40) and (Hossain, 2012, p. 756);	
Q9 – Links between sector specificity and method of innovation	(Kirschbaum, 2005a; Ettl and Rosenthal, 2011) prevalence of manufacturing in open innovation (Bianchi <i>et al.</i> , 2011; Michelino <i>et al.</i> , 2017; Antonio Toma, Secundo and Passiante, 2018) prevalence of pharmacy in open innovation	Q19 of the survey illustrated a relationship between companies manufacturing goods (defined as 'Industry') and using innovation to drive technological development.
Q10- Customer driven innovation	(van de Vrande <i>et al.</i> , 2009; Mahr, Lievens and Blazevic, 2014)	This was not covered in the main survey and customer-led or influenced innovation should be acknowledged if appropriate
Q11 – In-house innovation in comparison to outsourced innovation	RQ2	Statistical analysis of Q6 showed a relationship (expressed through Chi-squared) between goals for innovation and New Products development.
Q12 – Relationship between new product development and open innovation	RQ2	Participants identify the particular areas of the business that they are <u>innovating</u> and this question tests the reasons for this. A relationship between the importance of open innovation and new products was also established through comparison of statistics in Q5 and Q7
Q13 – Q14 Barriers and Enablers of open innovation	RQ2	
Q15 – 16 - Reasons for engaging with SMEs and large enterprises	Freel and Robson, (2017)/RQ2	Q40 asks participants to rank the importance of various open (<u>external</u> and closed (internal) innovation activities including working with other SMEs to innovate. This question seeks to understand why this variable was selected as the most important by <u>the majority</u> of respondents.

Results & Data Analysis

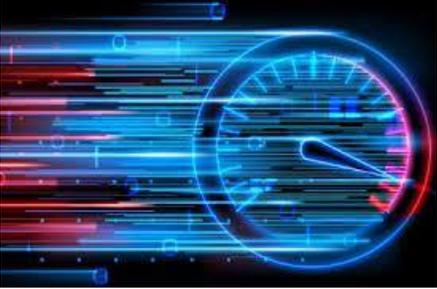
Corley and Giola (2004)



Findings: Structural Factors - Funding

Funding Intervention	Theme	Social Proof
 <p>SMARTCymru</p> <p>CO-INVESTING IN BUSINESS RESEARCH, DEVELOPMENT, AND INNOVATION FOR SUSTAINABLE GROWTH</p>	<p>Public funding for open innovation activity to support job creation and new product development.</p>	<p><i>“There is quite a bit of funding available...its the amount of work you’ve got to do to get that funding.”</i> (Participant 10)</p>
	<p>Funding is sought as the management of risk in collaborating with other partners (Schroll and Mild, 2011a).</p>	<p><i>“There would be less of a tendency to go outside because you would not be able to control all those monies being spent in the same way as you could control them if it was spent inside.”</i> (Participant 13)</p>
<p>SMARTCymru - RD&I Open Innovation Feasibility Support</p>	<p>Targeting funding at the feasibility stage maybe unwise given the need to reduce costs in product development which usually occurs in the post-feasibility stage of the innovation process</p>	<p><i>“If there’s any government funding going for particular areas of product development then we will be actively involved in that.”</i> (Participant 1)</p>

Findings: Structural Factors - Collaboration

Collaboration	Theme	Social Proof
	<p>Participants want to collaborate with smaller companies due to issues of trust and the need for further socialisation to enable interaction with larger enterprises.</p>	<p><i>"[SME collaboration] worked because we did have those shared values and that kind of shared ethos." (Participant 2)</i></p>
	<p>The speed of innovation when working with Higher Education is viewed by participants as slow. (Carbonell and Rodriguez, 2006; Afuah and Tucci, 2012) they do little to understand speed as a barrier to entry for innovation.</p>	<p><i>"traditional manufacturing companies, like ourselves, are becoming less compatible with educational facilities...we find that they work at a different pace to how we work." (Participant 3)</i></p>
 <p data-bbox="150 1178 552 1362">Intellectual Property Office</p>	<p>Clear guidance and support relating to the retention and exploitation of intellectual property is needed to ensure open and honest collaboration.</p>	<p><i>"If we work with people outside we are usually funding it totally. We are usually doing that simply because of IP issues. The IP belongs to us from the word go." (Participant 1)</i></p>

Findings: Structural Factors - Location

Locational Factors	Theme	Social Proof
	Access to talent from universities in urban areas is important to Welsh Medium-sized enterprises	<p><i>With the Swansea University obviously close to us, there is a lot of new talent in that sense of that as well.</i></p> <p><i>(Participant 10)</i></p>
	Policy gap between education, skills, and innovation that recent Welsh policy has failed to draw closer (see Employability Plan (Welsh Government, 2018a)).	<p>“I'll think about going forward, as how we join up, I think, the skills agenda with the actual innovation agenda”</p> <p><i>(Participant 6)</i></p>
	Importance of a talented workforce to drive forward innovation highlights a different perspective on the policy and institutional drivers of innovation in Wales.	<p>“We haven't got the expertise in-house and we need to bring in partners or friends to work with us on that”</p> <p><i>(Participant 1)</i></p>

Findings: Firm Level Factors: Strategy and Goals for Innovation

Strategy Interventions	Theme	Social Proof
	<p>Demonstrated a lack of innovation strategy, innovation is usually included in broader strategy or termed using different vocabulary such as 'continuous improvement' and 'change management</p>	<p>"our value statement is that we embrace change to be the best. And then within that value, there is a subset of words, one of which is innovative." <i>(Participant 2)</i></p>
	<p>Lack of dedicated innovation strategy limits the growth ambitions of these medium-sized enterprises (Oltra, Luisa and Alfaro, 2018)</p>	<p>"It's more part of a wider strategy rather than a specific innovation strategy." <i>(Participant 3)</i></p>
	<p>Complex set of human interactions and power relationships between leaders and innovation stakeholders within the company. Builds on the previous work on open innovation in the Welsh context (Rhisiart <i>et al.</i>, 2014).</p>	<p>Innovation was not included in organisational strategy because "staff are resistant to change" (Participant 2) and a lack of "time" (Participant 8).</p>

Findings: Firm Level Factors: Inputs/Outputs

Inputs/Outputs Innovation	Theme	Social Proof
	<p>Presence and control of knowledge and expertise at both an individual and organisational level leading to the development of absorptive capacity.</p>	<p>“Knowledge. We’re very respectful of institutions who have far superior knowledge than us” <i>(Participant 7)</i></p>
	<p>Effect of staff numbers, and firm size, on innovation activity. Some participants indicate that more staff would hinder innovation activity. (Hansen, 1992; Messeni Petruzzelli, Ardito and Savino, 2018),</p>	<p><i>“it makes it more challenging then I think because having a smaller team, you can perhaps be more effective in your engagement.”</i> <i>(Participant 6)</i></p>
	<p>Cost and control are key barriers in relation to the development of new products using open innovation. Previous studies (Gassmann et al., 2010; Worsnop et al., 2016) suggested that open innovation for NPD is reducing costs for large enterprises.</p>	<p>““So, that is number one. That we have got control over the quality of our products” <i>(Participant 4)</i></p>

Findings: Firm Level Factors: Technology

Technology Intervention	Theme	Social Proof
	<p>The issues of change and inertia were of importance to interviewees as barriers to technological development stressing the importance of people in the process of innovation</p>	<p>“We have a bit of a disconnect between what the customer wants and what tech development thinks that the customers want” <i>(Participant 8)</i></p>
	<p>Digital Innovation Intermediaries: Lack of take-up from businesses of this size were awareness in these platforms.</p>	<p><i>“I hadn’t heard of them. So, that was probably the main reason. I think there is definitely something about marketing or raising awareness about them to encourage more people to use them.”</i> <i>(Participant 2)</i></p>
	<p>Digital Innovation Intermediaries: Trust also effected the uptake in these platforms.</p>	<p>We don’t trust them. Because you’ll be talking to people you may never meet. You’ll be talking to people where you don’t know their background or whatever.” <i>(Participant 1)</i></p>

Summary



Structural Factors:

- 1) Increased funding for open innovation
- 2) Medium-sized enterprises express a preference for collaborating with SMEs in open innovation rather than large enterprises and universities.
- 3) Cost of collaboration is a barrier to open innovation
- 4) Intellectual property is a barrier to open innovation uptake in medium-sized enterprises
- 5) Sector specialisation influences methods of innovation
- 6) Urban areas and proximity to universities are key for skills and recruitment linked with innovation

Firm Level Factors:

- 1) Medium-sized enterprises predominantly don't use innovation strategy due to the influence of individual actors within the business
- 2) Innovation is driven by people and senior leadership in medium-sized enterprises
- 3) Expertise both internally within medium-sized enterprises and externally driven innovation
- 4) New product development through open innovation is difficult due to cost and control
- 5) People influence technological development more than technology
- 6) Medium-sized enterprises don't use digital innovation platforms due to trust and awareness

Feedback,
Discussion,
and
Questions



Thank you