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Business Model Innovation in European SMEs: some preliminary findings

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Abstract

Business Models have been on the research agenda since the emergence of ecommerce and ebusiness in late last century. Although a lot of attention has been paid to the concept, ontologies, taxonomies and approach in the field of strategic management, information systems, digital business and high-tech entrepreneurship research, empirical research either in the form of cases studies or quantitative research is largely missing or based on research that is not preliminary designed to understand BMs and their impact. This is even more the case for BM Innovation and BM research for Small and Medium Enterprises (SMEs). In this paper we present our very first results of a sample of European SMEs and how they deal with BM Innovation. Our research shows that 35% of the SMEs in our sample are involved in BMI. The research also show that changes in BMs most of the time are related to a combination of multiple innovations at the same time like entering a new market, changing their eco-system, change pricing strategy, or dealing with changes in IT.

Keywords: Business model, innovation, SMEs

1 Introduction

Business models has been on the agenda of business and science for a long time. Some say the first time Business Models were mentioned in academic literature goes back to 1975, when Business models were mentioned in Process and Data modelling / Information management literature. Till 1990 seven publications can be found in the ABI/Inform database, mainly in computer information science literature. Since then, mainly due to the emergence of WWW, ecommerce and e-business the number of papers in both academic and non-academic literature has exploded. Topics of attention has been the definition of the concepts, taxonomies, BM approaches, design of BMs, in diverse fields ranging from strategic and innovation management, entrepreneurship research, information systems and literature related to ecommerce, mobile of digital business. Currently Business Models for sustainability adhering to principals of the circular economy draw more and more attention.

Not only from an academic point of view BMs attracted a lot of attention, also from start-up and vested business as well as policy makers (EU and OECD) a fair share of attention was and is dedicated on the role of BM in generic innovation policy and economic performance. However empirical research, both case study research as well as large scale cross-sectionals research, is largely missing. Case studies that are available are often design cases but less focussed on the question what make BMs firms to perform better, to be more innovative on either a micro- or a macro-economic level. In the early days there were many case studies on how large companies adapted their BM to the emerging Internet, or to start-up companies that took advantage from the new opportunities.

Although a lot is written on Business Models and Business Model Innovation, empirical research is scarce, case study research is largely anecdotal, and the empirical research that is available is rather divers, scattered over different disciplines and research domains, and in some cases based on secondary analyses of data as collected via the Community Innovation Surveys (CIS). The CIS studies however were never designed to be focussed on Business models or Business Model Innovation. We define Business Model Innovation as a change in company's BM that is new to the firm and results in observable changes in the firm's practices towards its customers and partners. BM are defined as the business logic how a company creates, distribute and captures value. We clearly want to distinguish BM Innovation from product, organizational, or process innovation, by postulating that the core logic of value creation and capturing have to be at stake. Research on BM and BM innovation is mainly focussed on large and start-up businesses, but seldom on SMEs. SMEs are in many countries the driving force behind the economy and de facto employ the most people.

So, how SMEs struggled with Business Model Innovation is under researched. To fill this void, we will present the first original empirical results with regard to BMI and SMEs in Europe, and relevant methodological and other issues at stake. To frame the results, we will provide background literature, mainly with regard to what empirical cross-sectional research has been done with regard to BM Innovation until now. We will refrain from sketching the bigger pictures, as done by many others (Bouwman et al, 2008; Hedman & Kalling, 2003; Magretta, 2002; Osterwalder et al,

2005; Teece, 2010; Veitt et al, 2014; Wirtz et al., forthcoming; Zott et al. 2011;) and as we have done so in many of our earlier publications (NN). Since the current paper presents the first results, and data collection is at the moment of writing still underway, the results are mainly discussing methodological issues, and giving some insights at stake researching BM Innovation. Specifically, this research paper focuses on how business models changes are understood by European SMEs

2 Literature review

There is a number of papers that empirical research BM Innovation in relation to performance (see table 1). We looked for articles published and available in academic computer databases, like Scopus, Web of Science and Scholar Google, using keywords related to Business Model Innovation, SMEs and Empirical research related concepts. In general, the definition of SMEs doesn't follow the EU definition.

In some studies, (see table 1) companies with the size of 100 to 500 are analysed as mid-sized companies. Hartmann et al (2013) find that large business is better equipped to exploit BM Innovation. Some of the papers are rather vague on how BMs are defined (i.e. Aspara et al, 2010; Aziz & Mahmood, 2011; Clausen & Rasmussen, 2013; Huang, et al., 2012), what the core characteristics, components or relevant (sic) concepts are (Hartmann et al, 2014; Souto, 2015), sometimes even merely discussing revenue models (Aspara et al, 2010; Aziz & Mahmood, 2011; Brettel et al, 2012). Zott & Amit relate BM to design of content, structure and governance of transactions., with a focus on innovation and efficiency in value creation and capturing. Typically Hartmann et al. (2014) have a rather arbitrary list of components that are unrelated to components as used in BM ontologies, like CANVAS (Osterwalder et al, 2005), STOF (Bouwman et al, 2008) or Visor (El Sawy & Perreira,).

In the same grain Velu (2015) consider diversification/product launch and external funding as two indicators for BM Innovation. Other studies just label BM as consulting BM, technology BM, software BM, etc. and use this as a dummy variable (Clausen & Rasmussen, 2013. Kim and Min (2015) really simplify BM Innovation to adding online retail activities or not. Some studies are vague on how concepts are measured (Aziz & Mahmood, 2011), rather vague unspecified two item-based scales (Souto, 2015), or have a rather random list of components that are used as BM Innovation indicators (Huang et al, 2012).

While some studies are making use of secondary, CIS data as a proxy to BM innovation (Barjak et al 2014, European Union 2014) or data from existing databases (Cucculelli and Bettinelli, 2015; Hartmann et al, 2013; Kim and Min, 2015). In general performance is the key dependent variable, and most of the time linear regression analyses are used. Some studies apply SEM. The study by Cortimiglia et al (2015) confirms empirically that BM Innovation is mainly about strategy implementation, as was also proposed by Al-Debei, and Avison (2010), while Cucculelli and Bettinelli (2015) argue that BM Innovation is functional to corporate strategic entrepreneurship. Strangely enough they relate corporate entrepreneurship to network activities, while we would

argue that value network are a component of a BM. Clauss (2016) valuable paper is on developing a scale for BM Innovation. In general the empirical studies are divers, mainly based on a strategic management perspectives and linear econometric data analysis approaches (e.g. Cucculelli and Bettinelli, 2015; Hartmann et al, 2013; Kim and Min, 2015; Zott & Amit, 2007), and less on IS research in which the focus on ontologies offer more in depth information. Research is in a number of papers not driven by clear hypotheses or models. Nice alternatives of in-depth analyses making use of clear conceptualization of BM Innovation and more advanced model testing beyond ordinary econometric analyses are Brettel et al, 2012 and Clauss (2016).

Table 1: Review of empirical papers on Business Model Innovation

Reference	Key concepts included	Research subjects	Sample	Main Analysis
Aspara, et al. (2010)	business model innovation, strategic marketing, replication of BMs (components), and financial performance	Finnish large and small firms (unclear how defined in terms of size and turn over, median split is used)	545	
Aziz & Mahmood (2011)	business model, performance related to BM components like Stakeholders, competencies, value creation, and value capturing	Malaysian SMEs	202	Regression analysis
Barjak et al (2014)	business model innovation based on CIS, descriptive analysis	European SMEs	No info	
Brettel et al. (2012)	business model efficiency and novelty design, relation specific investments, performance	German, Austrian and Swiss SMEs	234	Confirmatory Factor Analysis and Regression analysis
Clausen, T. H., & Rasmussen, E. (2012)	Specific type of business model, number of BMs, technology domain, and innovativeness	Norwegian start-up companies	82	Regression analysis
Clauss (2016)	BM Innovation scale development Two studies	Small (<50) and midsized (50> <500) German companies, as well as large (>500)	126 232	Confirmatory Factor Analysis
Cheng, et al. (2014)	(service) business model, business model efficiency and novelty design , service innovativeness; market turbulence and competitive intensity	Large Taiwanese firms (> 304; < 8.300)	211	Confirmatory Factor Analysis and Regression analysis
Cortimiglia, M., A, Ghezzi, & A. Frank (2015)	Business Model Innovation, strategy process, CANVAS, BM design and improvement (when and how BMI in Strategy Making process)	Small but mainly large Italian firms : majority of sample is 100+	138	
Cucculelli, M. & C. Bettinelli (2015).	Levels of business model innovation/adaptation, corporate entrepreneurship, investment in intangibles, performance	Italian clothing SMEs, size between 10 and 500	376	Regression analysis
European Comission (2014)	Business Model Innovation per EU country	European SMEs < 250 employees	CIS samples	
Hartmann, et al.. (2013)	"Performance effect", "business model innovation", "empirical analysis"	Large Australian Firms in Financial industry	64	Regression analysis
Huang, et al. (2012)	Target costing system, business model innovation, performance	Large Firms and SMEs in China's electronics and information industry	189	Regression analysis
Kim, S.K. & S. Min (2015)?	Original and Imitative BM Innovation, sales revenues	Large incumbent publicly traded store based retailers in the US	131	Regression analysis

Souto (2015)	business model innovation, performance	SMEs and large firms in Hospitality Industry in Spain.	124	SEM
Velu (2015)	business model, survival of firm and the role of partnering with 3 rd parties with complementary assets	Start up f in the US electronic trading platform firms in the bond market	129	Regression analysis
Zott, C., & Amit (2007)	Novelty centred and efficiency centred business model design, resource munificence, performance	Early phase entrepreneurial firms in Europe and the US	190	Regression analysis
Zott, C., & Amit (2008)	Product market strategy, (novelty and efficiency centred) business model, and performance	Large Firms and SMEs	161	Regression analysis

In general, it can be concluded that research is rather scattered and sometimes lacks depth in understanding what Business Model Innovation implies, what antecedents are and how BM Innovation affects performance and innovativeness of firms. We see a clear gap and a lack of depth where BM ontologies and approaches can contribute to theory development as well as practical implications. Current research in progress tries to fill this void.

3 Methodology

3.1 Data collection

Data collection for this part of the H20202 Envision project, is at the time of writing still going on. Envision, next to building a knowledge platform and providing tooling to SMEs, focus on a large empirical quantitative and qualitative research on Business Model Innovation by European SMEs. Data for the quantitative study is collected by a professional, The Netherlands based research agency with experience in data-collection in multiple countries at the same time by making use of native speakers and Computer Assisted Telephone Inquiry. The data as reported in this paper is based on data as collected half-way during the first wave of the panel research in which companies will be followed for three years. Cross sectional data on BM Innovation behaviour of SMEs in 13 European countries will be used. The countries are spread over Europe and contain for all the European regions a large country with a large number of SMEs in large and a small country (see table 2). Quota for micro-enterprises, small and medium enterprise are established (33%-33% - 33%). There are no quota defined for industry sectors. Agriculture, public administration, and non-market activities of households are excluded. Although family businesses and female entrepreneurship deserve special attention seen the costly way of collecting the data these concepts are only included as background variables.

The sample was based on Dun & Bradstreet. Dun & Bradstreet collect data on companies, their executives, industry classification and contact information on a regular basis from Chambers of Commerce and other organizations. Based on disproportional quota sampling companies were randomly selected and key respondents (owner or –BMI- manager) were approached to collect data in each organization. The respondent was identified and registered by the research agency so that data as collected, can be used in the following years to approach the same respondent. This identification data is not known to the researchers.

3.2 Questionnaire

The questionnaire contains several concepts related to business model and business model innovation, as introduced in the theoretical part, in order to obtain a clear picture of this phenomenon in the firms. The questionnaire contains a generic selection question on the company understudy has changed its business model in the last 24 months and four specific selection question given an example of BM Innovation related to value propositions and market, eco-system, information technology or use of social media and/or big data and pricing and related financial issues. Next question with regard to size and industry sector were asked to confirm if the company was actual an SME and if it fits the industry sectors included in the research. Next all kind of mainly Likert like statements, based on well-known studies from literature on innovation, entrepreneurship, strategic management and so on, with regard to the BM of the firm were used. For instance, data on internal and external drivers, type of innovations, how BM change is managed, the BM-changes made, familiarity with and use of BM ontologies and tools, and performance and background characteristics were collected.

The questionnaire was iterated several times and pre-tested, based on reading out aloud, with managers and academics to improve understanding of the different questions. The questionnaire was developed in English and next translated into eleven languages, e.g. Dutch, France, Finnish, German, Italian, Lithuania, Polish, Portuguese, Slovenian, Spanish, and Swedish. The German questionnaire was also used in Austria. In order to detect problems and cultural issues a back translation process was then used to assure that translation did not introduce any bias in the measures. Moreover, a final check was done on translations and consistency between translation by the research agency. The questionnaire was next pre-tested for every single country.

The preliminary results as reported in this paper are based on 395 responses collected until now, even though incidence rate is based on 413 responses per February 16. The incidence rate provides the hit rate, e.g. the number of times accompany is asked if they are involved in BMI before an actual company is found that fulfils this requirement. The data in this paper are from the same day (February 16) but from different time moments, as a result there are small differences between information on the incidence rate for instance and the answers on the questionnaire. A full discussion on response and incidence rates can only be offered when the research is concluded.

4 Results

As a first approach to business model changes, we analysed the incidence rate. According to table 2, there was an overall incidence rate of 37% (N =413). This implies that of the 100 firms approached for this research 37 are actually involved in BM Innovation. In an small preliminary trial we found a lower rate of about 10%. So there is a surprising high number of SMEs that are involve in Business Model innovation. There are striking differences between countries as some countries such as Italy, a country with many SMEs, shows an incidence rate of 61% and so differs substantially from countries such as Netherlands with 21% incidence rate.

Similarly, if we analyse table 3, this results is in line with the question of whether or not companies have changed their business model during the last 24 months, we find similar patterns between countries. This could be due to the still small samples on a country level or to cultural bias among countries.

In order to get a better understanding of the incidence rate, we asked firms four main questions regarding which kind of business model changes were undertaken in the last 24 months (table 4). Changes in the value proposition have been made by 22% of the firms of the respondent. Changes in the eco-system: new partners, new client groups are made by 66% in the last two years. Changes in financial arrangements are made by 47%, and changes related to the use of It, including social media channels of Big Data are made by 58%. More detailed results on country level are presented in Table 5 to Table 8. Table 4 also shows firms in each country that have earned money by renting products or bundling the offer with services. In this case, an average of 77,5% of companies responded no. However, if we move forward to table 5, that analyse whether a company enter a new market of start working with new type of partners, we observe important differences among countries. In average, 66% responded yes. But if we look in detail we see that firms in countries such as France with 35,7% or United Kingdom with 56,8% differ substantially with firms in countries like Austria with 84,4%. In table 4, that also analyses the pricing strategy that goes beyond regular price adaptations, we obtained mixed results as in some countries such as Spain with 52,9% or United Kingdom with 56,8% this was a common strategy whereas in Germany only 25% answered yes. Finally, our last question analysed the incorporation of IT for business purposes like for example using social media or big data. In this case, as can also be observed in Table 4, on average 58,2% incorporate this type of technology but countries like Portugal with 60,9% or Spain with 70,6% have a higher value.

However, to know more about this, we created a new variable. The variable summarize if one, two, three or four questions with regard to BM Innovation were answered positively (see table 5). So if a company only confirmed that the BM change was related to It their score is 'one', while if there was also a change in network partners or market groups than the score will be 'two'. If all the four selection scores were answered positively than the score would be 'four'. The obtained scores can be observed in table 8. Surprisingly in several countries such as France, Germany, Portugal, Spain or Sweden we observed that changes were rather limited i.e. only one component for Business Model Innovation was addressed. The opposite was true for other countries like Austria with 9,4%, Finland with 14,6%, Italy with 2,4%, Lithuania with 5,4%, Netherlands with 4,3%, Poland with 10,7%, Slovenia with 8% or United Kingdom with 6,8%, which illustrates that Business Model Innovation happened in multiple components at the same time.

Next we focus on how BM Innovation was supported by methods and tools. Companies are familiar with BM methods like CANVAS, STOF, Visor or BM Cube, at least 15% confirms so. Most well-known are CANVAS (7%) and Lean CANVAS (2%). Methods spontaneously mentioned are amongst others Agile Scrum, Data Analytics, combinations of strategic approaches, SWOT and Prestel, and some consultancy tools, as well as market segmentation approaches. Tools used are rather divers and can be computer based (80%) as well as paper and pencil (62%), spreadsheets (82%), sticky notes

(51%), or board games (7%). Tools spontaneously mentioned are brainstorm sessions, gamification, Mind-maps, Business Intelligence tools, questionnaires, as well as Social Media.

5 Discussion

This paper presents the first descriptive empirical results on Business Model Innovation. Since the almost negligence of existing research it is impossible to compare our studies with other studies. The results are based on the data as collected in the period January – early February 2016. At the moment of the writing data collection is not yet concluded but based on a reasonable sample we present some initial insights. We hope to have more data in the next iteration of this paper. Compared with Barjak et al. (2014) CIS based data on BM Innovation In European country we get higher levels of companies innovating their BM. Whereas Portugal and Italy reached levels of about 10% of the companies to be involved in BM Innovation we see levels for these two countries 47% and 61%. For Germany this is 6% versus 25% and France 6% and 22%. The difference between Lithuania data based on CIS and our data is rather big 5% versus 53%. The same goes for Slovenia 6% versus 51%. Overall we find higher levels than based on CIS data. This might be due to the fact that we asked firms if they were engaged in Business Models Innovation in a generic way, as well as in a specific way by giving examples as discussed in the results (tables 3 to 7). In our view many SMEs are not aware that they are engaged in Business Model Innovation because they will not label this themselves in this way. At the other hand our way of selecting might have lead to false positives. Striking is that only a minority of SMEs are familiar with BM ontologies and with tooling. So there is tremendous space for promoting BM Innovation and tooling.

6 Conclusion

Pan European research is not without problems. Cultural and language problems can influence the results. Also institutional differences, differences in economy structure, market behaviour and performance, affect the results. Moreover, awareness of BM Innovation and what it actual implies might differ between countries. A next complication comes from the heterogeneous nature of SMEs. Micro-enterprises, small firms and even mid-size firms differ in core characteristics from industry to industry, and from country to country. Nevertheless, our research leads to some interesting conclusions first of all that a lot of SMEs practice BM Innovation, that there is still a lack of awareness with regard to BM Innovation and existing ontologies and tooling. Positive is that in practice all most all firms use computer and information technology when dealing with reflection on business model innovation.

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8 References

Bold references are empirical studies as mentioned in Table 1.

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Table 2. Incidence rate by country

	Austria	Finland	France	Germany	Italy	Lithuania	Netherlands	Poland	Portugal	Slovenia	Spain	Sweden	UK	total
% (and actual ##) of companies involved in BMI	54% (32)	41% (44)	22% (29)	29% (17)	61% (42)	53% (39)	21% (50)	39% (29)	47% (24)	51% (26)	47% (18)	37% (19)	40% (44)	37% (413)
N of SMEs (2012)	339.07 1	291.410	3.039.203	2.997.832	3.953.714	150.855	996.384	1.989.8 79	808.221	128.088	3.012. 443	736.112	2.054. 940	25.642. 461
% of SMEs EU 28	1,4%	1,2%	12,1%	12,0%	15,8%	0,6%	4,0%	7,9%	3,2%	0,5%	12,0%	2,9%	8,2%	

Source: Report base on 413 responses of SMEs in Europe, and data from <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tin00170&plugin=1>

Table 3. Did your Company change its business model during the last 24 months

	Austria	Finland	France	Germany	Italy	Lithuania	Netherlands	Poland	Portugal	Slovenia	Spain	Sweden	UK	total
Yes	21,9%	58,5%	14,3%	25%	61%	29,7%	36,2%	28,6%	39,1%	24%	35,3%	25,%	34,1%	35,4%
No	75%	41,5%	85,7%	75%	39%	70,3%	63,8%	71,4%	60,9%	76%	64,7%	75%	65,9%	64,3%

Table 4 Different instantiations of BM Innovation

A company no longer wants to sell products but earn money by renting them out, or make money by bundling the product with services. Did your company make this type of change during the last 24 months?														
	Austria	Finland	France	Germany	Italy	Lithuania	Netherlands	Poland	Portugal	Slovenia	Spain	Sweden	UK	total
Yes	28,1%	26,8%	10,7%	0	26,8%	13,5%	29,8%	35,7%	13,%	44,%	11,8%	18,8%	15,9%	22,5%
No	71,9%	73,2%	89,3%	100%	73,2%	86,5%	70,2%	64,3%	87%	56%	88,2%	81,3%	84,1%	77,5%
A company enters a new market or starts working with new type of partners. Did your company make this type of change during the last 24 months?														
Yes	84,4%	70,7%	35,7%	68,8%	63,4%	73%	66%	71,4%	69,6%	72%	76,5%	62,5%	56,8%	66,6%
No	15,6%	29,3%	64,3%	31,3%	36,6%	27%	34%	28,6%	30,4%	28%	23,5%	37,5%	43,2%	33,4%
Change the pricing strategy, that goes beyond the regular price adaptations. Did your company make this change during the last 24 months?														
Yes	31,3%	51,2%	32,1%	25%	63,4%	48,6%	42,6%	67,9%	52,2%	44%	52,9%	12,5%	56,8%	47,1%
No	68,8%	48,8%	67,9%	75%	36,6%	51,4%	57,4%	32,1%	47,8%	56%	47,1%	87,5%	43,2%	52,9%
Incorporation of IT for business purposes for example using social media or big data in sales channels or in marketing. Did your company make this change during the last 24 months?														
Yes	59,4%	63,4%	64,3%	62,5%	51,2%	51,4%	57,4%	39,3%	60,9%	44%	70,6%	75%	68,2%	58,2%
No	40,6%	36,6%	35,7%	37,5%	48,8%	48,6%	42,6%	60,7%	39,1%	56%	29,4%	25%	31,8%	41,8%

Source: Report base on 395 responses of SMEs in Europe

Table 5. Percentage of business model changes during the last 24 months

	Austria	Finland	France	Germany	Italy	Lithuania	Netherlands	Poland	Portugal	Slovenia	Spain	Sweden	UK	total
1	40,6	34,1	60,7	50	26,8	37,8	36,2	35,7	26,1	32	23,5	50	27,3	35,9
2	25	34,1	35,7	43,8	43,9	43,2	36,2	25	52,2	40	41,2	31,3	54,5	39,2
3	25	17,1	3,6	6,3	26,8	13,5	23,4	28,6	21,7	20	35,3	18,8	11,4	19,2
4	9,4	14,6	0	0	2,4	5,4	4,3	10,7	0	8	0	0	6,8	5,6

Source: Report base on 395 responses of SMEs in Europe

*Sum up and percentage of business model changes of activities (table 3 to table 6)