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Continuous knowledge sharing in the third phase of a critical and risky Network-based Business Model Innovation project

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Abstract— Continuous joint action and knowledge sharing are fundamental aspects of business model innovation (BMI) for businesses to meet the complex BMI agenda of today; 12 independent businesses initially joint innovating on the establishment of a new business model concept of a balanced energy plant project in 2013, where the businesses had to work in symbioses from the very first moment. They and the Greenlab Skive business model innovation project have now in the summer 2017 reached the third critical BMI phase of this high risk BMI project – “letting go”-, the prototyping and implementation phase. The new established management with now a formal CEO and board have an important task related to achieve a long term sustainable GLS business – beyond phase 3 and phase 4. The paper address how GLS can create sustainable knowledge creation and exchange to insure that the GLS business will survive beyond implementation and initial operation phase and still be attractive as knowledge partner/Zone when the GLS begins operating.

Keywords— Business Model Innovation; Critical and risky business model innovation; Critical Processes in Business Model Innovation action; knowledge home

I. INTRODUCTION

In two previous papers presented at the IFKAD conference 2015 and 2016 the GreenLab Skive project (GLS) was still in the very initial and “happy days” of the BMI project (first paper 2015) [10] – “downloading and seeing phase” and later on in the conceptualization phase (Second paper 2016) [11] – “sensing phase”. The project have now passed into the phase of “letting go” [9] and have quickly gone into the third phase filled with final contract negotiations, the legal and public acceptance of the GLS project, financial and multi business model prototyping. The fourth phase – the implementation phase - is near by together with the challenge of adaption new and the right network partners to join the project from different business model ecosystems (BMES) outside the initial GLS network. Grand Opening and beginning of the construction is expected in autumn 2017 or early spring 2018. A formal management, CEO and organization around the GLS business have been established.

II. DESIGN/METHODOLOGY/APPROACH

This paper provides one case study in one high risk and complex BMI project and BMES. The research paper is one of three longitudinal case study of the GLS NBBMI project

commencing in 2013 and now close to implementation to the BM Ecosystem (BMES) – or even establishing a new BMES in 2017. The research methodology was decided at the very beginning of the study to be a participative action case research carried out from 2013 to 2017. This means that the researchers aimed at participating as close as possible in the GLS project. Researchers have been invited into most meetings, development, critical moments through the entire “life time” of GLS and thereby have been very close to the entire BMI process establishing GLS. The researchers have even processed workshops for the participants at 3 occasions along with carrying out continuously a manifold of interviews individually with each involved business and in groups of businesses.

The paper fills in the research gap between multi BMI science and network sciences in the domain of joint action, coopetition and sharing values – core- and critical knowledge – in BMI with businesses operating their BMs outside “their core business”. Three processes

- task co-representation (the ability to form and continually build on a mental representation of co-actor’s task in a BMI project that is going to or partly going to operated outside core business)
- Joint attention (the ability to attend to objects, knowledge or events created together during the establishment of the BMI project and beyond)
- temporal coordination (the ability to adjust the timing of one’s own actions and BM’s to others’ actions and BM’s in the BMI project)

were presented in earlier papers [10], [11] regarded to be critical for joint action [16] and thereby had to be addressed and paid attention to.

“How to create sustainable knowledge creation and exchange at GLS to insure that the GLS business will survive and be attractive as knowledge partner/Zone [1] – also in the future – beyond when the GLS begins operating expected in 2019”?

III. THEORETICAL BACKGROUND

Business model (BM) science and best practice tools have had little to say on the network aspect of BMI projects related to sustainability and how to create, capture, deliver, receive and

consume knowledge and innovation continuously so that the business in focus – here GLS - continuously is attractive as a knowledge partner. Knowledge is “rawmaterial” to future BMI

– but how to secure knowledge creation and receive and attract value able knowledge?

The establishment of a “knowledge exchange room” – a “knowledge home” [15] for continuous knowledge creation, capturing, delivery, receiving and consumption – continuous BMI and BMI interaction - is essential not just at the very first moments as we documented in our previous two articles presented [10], [11]. Knowledge creation has to be secured and knowledge has to be attracted continuously - “meetings” and important “value adding knowledge creation processes” between the involved participants and by adaption of new knowledge and from new knowledge partners has to be secured. Machines and “simple” production does not as such create new knowledge – and BMI – and the GLS management is well aware of this – but how to?

It is therefore strongly challenging – but needed and important - in the later phases of the BMI process – prototyping and implementation of GLS - to already begin thinking, innovating and acting on how the GLS business could secure the process of knowledge creation and knowledge development after the GLS business has been prototyped, implemented – and begins the operation phase. The business – in the case of GLS a networkbased business consisting initially of 12 independent businesses – has to create the foundation for knowledge sharing and learning throughout the whole BMI project’s lifetime – not just the BMI phase – but also after this phase. This should form “the base” – or could become the “knowledge home” [15] ” for GLS to secure its success and sustainable business beyond the BMI process – when GLS is implemented into a BM ecosystem – or to existing BM Ecosystems – which are not yet known.

IV. FINDINGS IN THE GLS BM CASE RESEARCH

One case was studied for this paper, being GreenLab Skive (GLS).

A. GreenLab Skive (GLS) – a short updated introduction

The ambition of GLS was initially to invest about 70 mill. Euro and build in an energy production site that develops, uses, and demonstrates green energy production in symbiosis. Most businesses involved in the project wanted GLS to become a producing plant on commercial terms (EON, YP, HMN), however, some others (SK, DEIF, HT) wanted the possibility for having a robust set-up for the production and at the same time being able to establish a “testbed” of new technologies, BMs, interoperability of different BMs and many more issues. Skive Municipality have together with some experts (COWI, PWC, PE, EMA) further developed the BMI project related to the first phase and the second phase [10], [11].

B. Introduction to the third phase of GreenLab Skive – GLS

The early involvement and early establishment of trust in the first and second phase have served and created a reduced perceptions of BM risk and complexity [10], [11]. It had made

the network partners more open to each other in the NBBMI in the first and second phase – but in the third phase the management and the board of GLS although decided to use a more close BMI structure to the environment and BMES around. This process and new structure commenced when the original network partners and some new networkpartners was gather at a central meeting in spring 2016 and asked to take decision and making commitment on involving themselves more in GLS. The management and some core network partners wanted the involved businesses to take active part of a more formal partnership business model. Further the CEO for the Energy Fond Skive – [8] was announced as main responsible for Greenlab Skive – [7] and a formal board of some of the key partners was decided. The new organizational structure for GLS was now formed and GLS CEO together with the board began in autumn 2016 to formulated a new vision for GLS which was announced officially in spring 2017 as

“Green Lab Skive wants to be a game changer in the industry”

Hereby GreenLab Skive increased its core business to become not just a renewable energy production plant producing energy in symbiosis but also to become

“a business development park, which will be located in a designated energy and resource landscape on the outskirts of Skive in Central Denmark Region”.

The core of GreenLab Skive is however still a power-to-gas plant [7] as can be seen in figure 1.

Figure 1: New drawing of the vision on the Greenlab Skive [7]

GLS increased in its 3. phase its business model to become

By this GLS expected that customer and users being a part of the GLS business development park would be attracted by the value proposition and opportunities offered by GLS to test their technologies and projects in real time and within a full-scale renewable energy context – hereby with the aim to create

“smart energy systems in an industrial symbiosis for growth”

The business model purpose or goals of GLS was as can be seen changed radically in the 3 phase

“to create one of Europe’s leading centres for renewable energy, where RE technologies such as power-to-gas and system integration are tested in a large-scale symbiotic setup” [7].

The most innovative aspect according to GLS CEO would however still be the implementation of a full-scale power-to-gas plant, with the technology at GreenLab Skive performing a key role in the overall energy conversion chain together with enabling an industrial symbiosis involving the intelligent use of surplus energy streams. This energy chain would in full operation consists of photovoltaics, wind turbines, electrolysis, biogas, upgrading, methanisation, the natural gas grid, landfill gas, CHP engines and energy system balancing.

Figure 2: The vision of the core business of Greenlab Skive [7]

6 new network partners were further enrolled in GLS complementing the existing core business network – Eniig, Skive Vand, Quanta Fuel, Partnerskab for Brint og Brændselsceller, VB Entreprise – please see [7] and figure 3 showing the core partners of Greenlab Skive just before implementation and starting the physical construction of GLS.

Figure 3: Partners of Greenlab Skive spring 2017 [7].

As can be seen compared to our previous research papers [10], [11] some partners have now left Greenlab Skive – and the entire network of network partners have increased to now 16.

The original plan from the 1st phase is shown in figure 4.

Figure 4.: The original plan from the ideation workshop at the 1st BMI phase of Greenlab Skive [7]

is now very close to realisation and first construction work is expected to be commence in November 2017 alternatively in early spring 2018 at the opening of the European Biogas 2020 conference 2017 in Skive [2].

1) Task co-representation, process 1 - GLS

The process in the third phase was to define and increase the common ground for the network partners [6] especially to keep the network partners in the GLS BMI project and attract new network partners in order to support and enable the fulfilment of the original BM scenario game build at the first and second phase. The already developed relationships and collaboration amongst the original businesses and people involved seems to be core to the realisation of the high risk GLS project. The original purpose and the verification of the businesses AS IS and TO BE BM’s in their BeeBoards, ensuring the placement of the businesses’ BMs, and to present the businesses to the BMs, that they had analysed and identified on their behalf seemed to be very important and seemed to hold – although the Energy BMES and especially the Biogas BMES were changing radically in the time period autumn 2016 to spring 2017. The trust and commitment between the businesses from phase 1 and 2 seemed to continue among the core network business partners – as a basic shared core competence of GLS. In other words although the risk of the investment was increasing in the time periode of phase 3 the network partners did not show any sign to withdraw.

2) Joint attention from the BM Scenario game - process 2 - GLS

The main purpose of the BM scenario game in phase 1 and 2 resulting in the common vision for GLS business and related BMs to the overall Vision 2019 of GLS agreed upon seems to hold also in phase 3.

The outcome of the event –1 chosen BM scenario for GLS and finally 1 presentation of the GLS Business scenario seemed now to be close to realization. The detailed shared vision, mission, goals and strategy of the GLS BM for future commitment from phase 2 seems to hold in phase 3.

The CEO and Board seemed to keep joint attention via heavy communication and promotion on GLS to the BMES and environment in general around – both at an local, regional national and international level.

3) Temporal coordination, process 3 – Following up on The BM scenario game

The BM scenario game ended by the phase 2 - concluding and agreeing upon one GLS BM Scenario; GLS Scenario 2 that now seems to be realised – and coordinated by the core network partners. However to realise this scenario land has to be bought locally – maybe expropriated, several environmental and legal regulative and procedures had to be carried out and fulfilled. The CEO and his team coordinated all this work with reference to the new board.

V. DISCUSSIONS

External BMI ecosystems (BMES) and the project's own BMES in itself can – although the NBBMI project seems to be functioning well and progressing – lay some serious barriers and challenges – in itself - to future and long term BMI progress in GLS. The Biogas BM Ecosystem and the Energy BMES overall changed in 2016 – 2017 meaning that Biogas investment and production came under pressure and the intended startup part of GLS – the Biogas production plant - was under pressure both on earnings and subsidies. The national government changed the rules and subsidies on Biogas production. The Biogas BMES in Sweden and Norway were changing. The price of oil and gas were now not as high as when the GLS idea and concept initially was developed.

The research on GLS aims to understand the cognitive mechanisms “at a high risk NBBMI process and project” – in this paper specific the third phase of the critical and risky BMI project. How did GLS management support participants' ability and motivation to continue to act together with each other – in the prototype and implementation phase and how they plan for the phase 4, 5 and

The study in this paper adds to our NBBMI study related to the 3. and 4. Quadrant of the Relations Axiom [9], [12] where BMI takes place outside the businesses involved and inside the BM of focus. The study shows that the core networkpartners closes the network BMI process – and not all decisions are open to the environment. Our analysis is that this is due to GLS BMI project has now moved into the “letting go” and realization phase, where critical decisions cannot be open to all. What we as researchers had not experienced before was that the risk of the project due to changing conditions in BMES externally began to increase. However someone have to realize that the GLS BMI project is a longterm BMI project where maybe short term change in the BMES and BMES around maybe do not influence the network partners risk appetite and motivation to realize GLS.

The research have earlier addressed the importance of creating “a knowledge home “ related to a high risk and

sensitive NBBMI project – in this case GLS. Involved businesses had already opened up their core business, core BMs and core competences, had, and still expect trust, progression and fulfilment of success criteria – in other words results and momentum in GLS. The way the core network partners handled this in the third phase was to sided

- Closing the decision process and demanding membership of the network partners attached to GLS
- Increasing the core business model of Greenlab Skive to not just be a renewable energy plant in symbiosis but now also a Business Park in Symbiosis – with the power to gas as the core of the business.

In our earlier study we claimed that

“An open way of doing Business Model Innovation in network (ONBMI) is where businesses focus on all dimensions of their involved BMs and merge and innovate these with each others BMs making complementary BMI [3], [5],[12], Co-opetition (inspired by [13]). This can benefit each businesses and their business models with the aim of contributing to a larger BM Ecosystem (BMES) that eventually in optimum could be created to work in symbiosis, where each BM are develop and “motivated” to innovated with one or more BM in the BMESs with even niche or differentiation competitive advantages cf. [17]and [14]. To preserve future growth to the BMES [12] for the businesses involved and make the “cake” even larger – coopetition – instead of fighting for shares it is vital to attract knowledge and create knowledge in the BMES” [12].

This is to some extent exactly what GLS management and Board have done by preparing and establishing a new and/or revised business model for GLS, which enables a “a continuously”inflow” of BMI projects that can secure generation of new BMs, new technologies and even new BMES as a spin-off from the original BMI project.” [12]. However the core networkpartners also reacted opposite by closing the decisions and BMI process in some part of the GLS project. It was not possible at the end of this paper to get enough information on why the core network partners made this choice.

In general however GLS and the GLS BMI strategy have already shown result as it had generate and attracted new strategic partnerships with external investors or partners – quadrant 4 [11] previously unknown to the GLS businesses involved. Ultimately ending up with financing spin- off developments that might otherwise not have been pursued or fully financed by the businesses itself or traditional investors in their “core line of business” [4].

Open NBBMI projects and BMI in Symbiosis becomes more and more frequent, where unknown and different partners team up to stay cope with the increasing demands of finding new solutions with high quality and low costs to even more complex BMI projects and global BMI challenge – for example within energy, climate and health challenges (EU – Horizon 2020, Davos 2016). However as can be seen in the GLS BMI project in some cases and time in the BMI project it can be

necessary to “play” a more closed form for BMI project and knowledge sharing.

VI. CONCLUSIONS

The high risk GLS project is close to realization and is now in phase 3 and close to phase 4 - implementation. The researchers have followed the project for more than 4 years and what initially began as an idea seems now to be realized in November 2017 due to a strong network of business partners.

The GLS BMI project seems to keep and built on values, trust, motivation and results build at the very first moment – phase 1 and phase 2 of GLS BMI project. The networkpartners seems to be very focused to achieve and realize the initial expected vision of GLS and the related success criteria and expected results of the network partners – also in the third and fourth phase independent that the BMES of GLS and BMES around GLS is changing – even radically.

The network partners seems to continue valuing and engaging knowledge sharing between network partners even in this critical and risky NBBMI project and even also in the third phase of the BMI project GLS

The GLS networkpartners seems to create sustainable knowledge creation and exchange at GLS by closing some parts of the project, attracting new networkpartners and establishing – increasing – the original fundament and core business of GLS. This seems at the moment to insure that the GLS business will survive and be attractive as knowledge partner – also in the future – and hopefully beyond when the GLS begins operating in 2019.

VII. FURTHER RESEARCH

The GLS project is very close to realization and our research group intend to follow GLS to the implementation and maybe beyond depending on GLS fulfill the vision of a symbiosis business model approach.

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