Dutch Blockchain Coalition
connect and create

SCIENCE COMMUNICATION PILOT PROJECT

Report 1
Collaboration readiness report

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EXECUTIVE SUMMARY

The Dutch Blockchain Coalition is an innovation network, a collaboration of diverse partners from different universities, government institutions, and companies from different (energy, financial or advisory) sectors, all of which were already busy experimenting with implementing the Blockchain technology at the start of the coalition. The coalition has formulated common incentives to focus on (formulated as the three action lines) and has enthusiastic and motivated members who are willing to put effort and money into the joint work to get the most out of the coalition. Almost everyone shares the vision that Blockchain development cannot be done alone.

Based on theoretical knowledge on this complex type of complex collaborations, a collaboration readiness framework was used to generate interview questions, and interviews were performed to check which factors from this theoretical framework play an important role in determining the collaboration readiness of several internal stakeholders. Two groups of stakeholders were interviewed, members of the kern team and the IPO, and members of the "coalitieberaad", who do not directly delegate members to the previous groups. Based on observations of the coalition's activity and on the interviews, a list of issues is stated in this document, with substantial suggestions how to solve these issues.

As the core message of the results of the collaboration readiness research, we can conclude that the members are motivated and enthusiastic about bringing the coalition to success, but due to the diversity of members, their working culture, motivation and interests, there are issues arising which worth to be dealt with to release tensions between the different members and especially different layers of the coalition. To name some of the most crucial issues: Although the coalition is at the moment in the transition from the formulation to the sustainment stage, most of the members would like to speed up the process and get results as soon as possible. Due to this need for speed, some of the important foundation's steps were simply skipped, and that lead to the rise of some tensions in different areas. Moreover there are important strategic decisions made not transparently or not in a collaborative way. Most interviewed members miss transparency, information, inclusiveness, and possibilities to ask questions and discuss issues which are crucial to the success of the coalition (like the location of the home base). Due to the growing number of coalition members and the reduced number of "coalitieberaad" meetings the discussion is limited. The flow of information is unidirectional, the IPO sends out reports of their meetings, which is already a development, but the communication has to be two-way, those partners who are not present at those meetings could also propose a topic to be discussed.

Some of these issues could be solved by a carefully and strategically built communication platform, but others would need to be discussed with the members to find satisfactory solutions. Our proposed adaptive innovation model built on interactive, two-way communication with different stakeholders also includes the internal communication between different layers of the coalition. We advise the coalition to widen their two-way communication, and define clear rules and tasks. To bring a transdisciplinary, multisector coalition to success is a great challenge and a hard work, and we would like to bring our expertise to help the coalition further in this process with bringing up issues, initiating discussions which could lead to easing the tensions.

THE DUTCH BLOCKCHAIN COALITION AS A COLLABORATION

The innovation-related challenges of our modern world are getting multi-dimensional, integrating not only technological but also societal and environmental challenges. The complexity of these problems requires the involvement of multiple stakeholders in the innovation process, actors from different organizations, interests and spheres of activity. The integrative and participatory approach of knowledge production and R&D has gained more and more focus in the last decades [1]. This approach of joint work engages scientists with non-scientific actors and stakeholders by bridging disciplinary and sector-based boundaries.

For businesses, in the current competitive world collaborations are recognized by as possibilities to provide the partners a bigger change to survive in the turbulent market conditions. The collaborating partners share their human capital, share risk and resources, join complementary skills and capacities to gain competitive advantages especially in technology innovation fields [2]. These collaborations, often called in the literature as collaborative networked organizations or collaborative networks are "networks of organizations that are largely autonomous, geographically distributed and heterogeneous in terms of their operating environment, culture, social capital and goals"[3].

Blockchain, the distributed ledger technology is a disruptive innovation, with potential uses in healthcare, food industry, energy, smart industry, logistics, and government. Blockchain promises an overhaul of basic aspects of our economy and society, by providing individual agents with capacities to liaise, trade and work with others without the use of centralised registration, monitoring and control. Blockchain, in other words, entails an entirely new way of identification, transacting, trading and regulation.

The Dutch Blockchain Coalition is supporting a national initiative to meet the technological, business and societal challenges of the Blockchain technology and to bridge the gap between organizations.

FIGURE 1: THE DUTCH BLOCKCHAIN COALITION CORE PARTNERS

Blockchain is best seen as a technology that is co-created with multiple stakeholders, some of which are included in the coalition while other stakeholders remain outside the coalition. The heterogeneity of the stakeholders implies that these stakeholders are likely to have very different backgrounds and interests and as a result they are also likely to have very different understandings of Blockchain in terms of (for example) what it is and what it should do. This may both hamper collaboration among these stakeholders and reduce widespread support for Blockchain. It may also limit the possibilities to garner wider political and public support, which requires the coalition to reach out with a coherent and convincing message.

This pilot study was performed to map how different internal stakeholders collaborate, how they perceive the technology, how they reach out, and how these issues could determine the success of Blockchain innovations.

TYPES OF COLLABORATIONS

Scientific collaborations are categorized by the diversity of disciplines the participants are representing. In **unidisciplinary** collaborations researchers from a single discipline work together to address a common problem. When researchers from different fields each make separate contribution in an additive way, then we talk about **multidisciplinary** work. If researchers integrate information, data techniques, tools, perspectives, concepts and theories from two or more disciplines to advance fundamental understanding or to solve problems, then the collaboration is **interdisciplinary**. In **transdisciplinary** collaborations researchers integrate and also transcend disciplinary approaches to generate fundamentally new conceptual frameworks, theories, models and applications. This is the most difficult form of joint work, although the complexity of the collaboration can be still increased if the participants are coming from different **sectors**. As Gray conceptualizes it, "*transdisciplinary collaborations are innovation networks underscoring the need for network stability, knowledge mobility and innovation appropriability*" [4].

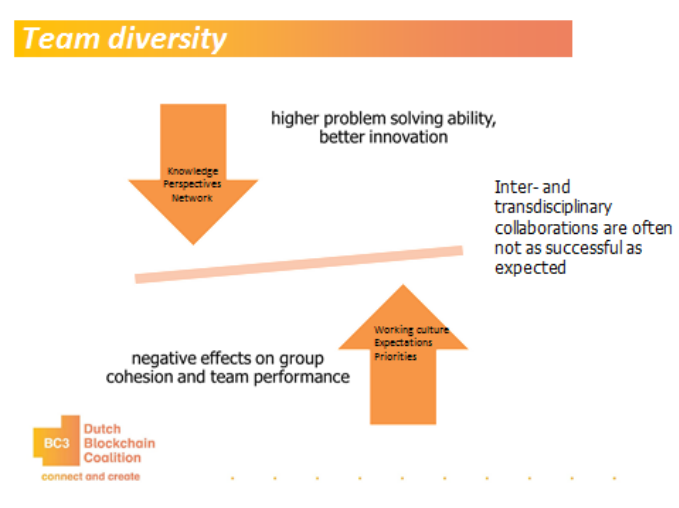

FIGURE 2: THE POSITIVE AND NEGATIVE EFFECTS OF TEAM DIVERSITY

In the case of the Dutch Blockchain Coalition we have a collaboration which belongs to the most complex category, transdisciplinary and multisector collaboration or innovation network. The collaborating partners are coming from companies from the financial, transport, advisory or energy sectors, but also from research institutions and governmental organizations, like the Tax Authority or the Ministry of Economic Affairs (see the core partners' list below Figure 1).

On one hand this diversity bring a higher change to solve complex problems and can lead to better innovation due to the synthesis of knowledge, wide array of networks and different perspectives, but on the other hand, it increases the changes of tensions between the team due to different working cultures, versatile expectations and priorities (as shown in Figure 2).

STAGES OF COLLABORATIONS

Collaborations have their life cycles, and each stage of this cycle has different issues that play a crucial role in the success of the collaboration (shown in Figure 3). At the foundation stage generally scientific, political and socio-economic issues determine who will join the collaborating team. At the formulation stage it was shown that it is crucial to create a shared vision, to determine shared goals and to formulate the tasks of the participants clearly. Decisions on leadership, organizational structure, legal issues, about intellectual property and about the ways to share data are also essential factors in determining the success of the coalitions.

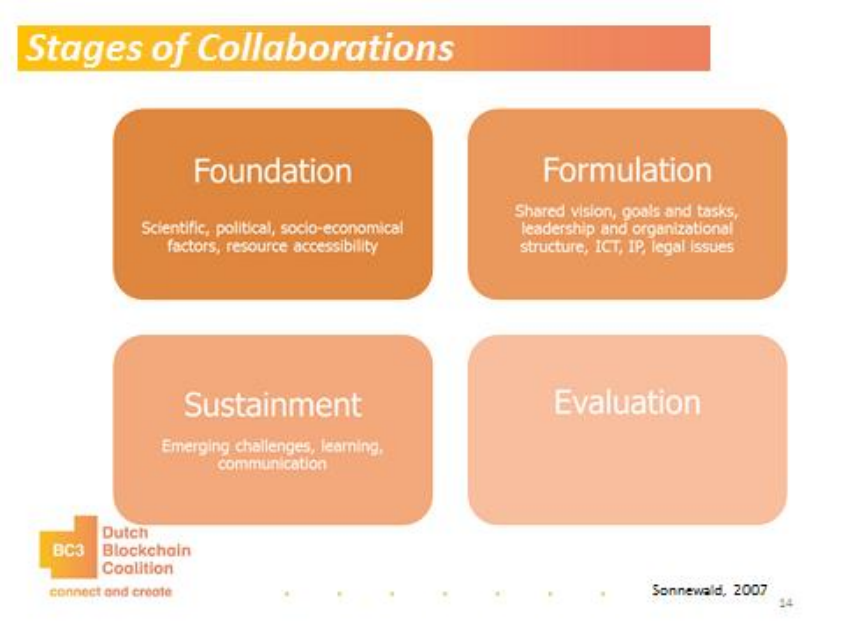

FIGURE 3: STAGES OF COLLABORATION, BASED ON SONNEWALD **[6]**

In later stages, when the collaborative work has to be sustained, new problems can emerge. In most of the cases these problems are related to communication between the members and to social learning (openness to new types of knowledge). When the joint work has reached the formulated common goals, the success and effectivity of the collaboration has to be evaluated. Usually this step is accompanied by a learning process, each and every member draw their conclusions about what worked and what not, and what to change next time [6].

LEVELS OF COLLABORATIONS

Collaboration can be viewed as a continuum with distinct levels. These levels are not better or worse compared to each other; every joint work requires different levels of collaboration (listed in Table 1.)

Levels of collaboration	
Coexistence	the partners are aware of each other, but there is no common work
Networking	the partners have loosely defined roles, and make independent decisions
Coordination	the partners provide information to each other, have somewhat defined roles but they make independent decisions
Cooperation	the partners share information and resources, have defined roles and share some of the decision making
Coalition	the partners share ideas, resources, have frequent and prioritized communication, and all members have a vote in decision making
Collaboration	all members belong to a community, have frequent communication characterized by mutual trust, and consensus is reached on all decisions

TABLE 1: LEVELS OF COLLABORATION, BASED ON HOGUE [7]:

COLLABORATION READINESS

Companies who are developing new technology innovations can stand at various levels of technology readiness. On the analogy of the technology readiness levels, a model was suggested saying that companies or organizations who work together could stand at different levels of collaboration readiness [8].

As Romero defines it: "… *collaboration readiness can be defined as the evidence of readiness reflected in the provision of staff, budget, technology and other resources to support collaboration based on the quality and effectiveness of past and current collaborative activities across organizational boundaries. In collaborative networks, readiness for collaboration means the organization's capability for leadership to support collaborative activities, allocate resources (money, staff, technology and information) across organizational boundaries, and attach to a common ground for successful collaboration" [2].*

For those who are willing to work together in an innovation network, the companies and organizations culture has to be ready to apply the key success factors of collaborations, which are trust, information sharing, inclusiveness, openness, learning and working together on a common goal. Those organizations, whose working culture is not willing or able to implement these characteristics, will not be ready for collaboration. The collaboration readiness concept covers several aspects, from technological and economical to behavioral and social ones [9].

There are several collaboration readiness models existing, focusing on different success factors of collaborations. In this pilot study we were using the collaboration readiness framework suggested for transdisciplinary co-production teams by Merritt Polk [1]. This framework is focusing on five focal areas of collaborations: inclusion, collaboration, integration, usability and reflexivity (definition of these areas can be found in Table 2).

ISSUES RELATED TO COLLABORATION READINESS IN THE DUTCH BLOCKCHAIN COALITION

Our Science Communication group is part of the Dutch Blockchain Coalition since its foundation. The observations we made during the meetings of the Dutch Blockchain Coalition revealed some issues regarding science communication and collaboration readiness. To be able to see how general these issues are and to collect information from a variety of stakeholders, we prepared a social scientific research plan using a qualitative interview. The interview questions were aimed to investigate the actual factors that play a role in determining the members' collaboration readiness levels above the personal level, with the focus of their organizations' motivations, previous collaboration experiences, interests and goals. Although we focused on the organizational level, personal opinions and observations of course cannot be ruled out, that has to be kept in mind when putting the results of the research into context.

The one-hour-long semi-structured interviews were performed with in total 14 members of the coalition, with some representing different sectors of the business world or the government, and with some members of the coalition management. The interviews were recorded, transcribed; the transcripts were anonymized and saved in a safe data repository. The transcripts were analyzed with a qualitative analysis tool, Atlas Ti, using the Collaboration Readiness framework as code families, and the coded quotes were collected from the interview transcripts under the code families.

The results of the analysis can be fund grouped under the focal areas. Some of the issues appeared in several interviews, while others were more general. The pilot study was performed in limited number of interviews (14), therefore the conclusions are not generalizable for the whole coalition. More interviews would be needed to investigate more stakeholders' opinions, ideas, experiences etc. Some of the issues are underpinned with **quotes from the interviews**, and next to them we provide hands-on advice to deal with these issues.

Focal area	Definition
Collaboration	The process and methods for participating as well as the quality and degree of the participation result in in-depth contribution from both practice and research
Inclusion	Different groups of stakeholders from both practice and research are entitled to the knowledge production process
Integration	The assimilation, combination and/or synthesis of both practice-based and scientific perspectives, values, knowledge and expertise adequately capture the problem complexity and issues being addressed
Usability	Assessment and reflection upon the social robustness and transformative capacity of outputs and outcomes occur throughout the research process
Reflexivity	The project approach includes on-going scrutiny of the choices that are made when identifying and integrating diverse values, priorities, worldviews, expertise and knowledge from both practice and science in the research process

TABLE 2: FOCAL AREAS OF THE COLLABORATION READINESS MODEL, BASED ON POLK [1]

1. COLLABORATION

- Although the coalition is at the moment in the transition from the **formulation to the sustainment stage**, most of the members would like to speed up the process and already gain results as soon as possible (they would be at the middle of the sustainment stage and get results as soon as possible). Due to this need for speed, some of the important foundation's steps were simply skipped, and that lead to the rise of some tensions in different areas.
- The **tasks and responsibilities** are not specified nor described. This comes maybe from the fact that tasks are mostly taken voluntarily and that not everyone has the same amount for different tasks within the coalition, but still, the tasks within the workgroups, the IPO etc has to be specified, communicated and made transparent.
- Although the coalition members (not the management group) in general did not really have specific tasks within the DBC, they had a strong feeling of **responsibility** to participate in the coalition.
- The different partners had different motifs to join the coalition, which, in theory, could result in differences in the commitment of the different partners, but based on the interviews, this is not the case, the coalition members are highly committed (gave in general 4 out of 5 for commitment) to make together the coalition a great success.
- One of the mostly appreciated **added values of the coalition for the member companies** is that it brings together the parties involved in Blockchain development. Most of the interviewees stated that the technology itself needs collaboration for its development.

> *"Nou, dat is het gene wat de blockchain coalitie ons kan bieden, is een netwerk van bedrijven die samen optrekken om op nationale schaal iets van de grond te krijgen en daarmee ook de vereiste overheidspartijen gewoon geïnteresseerd en enthousiast te krijgen, en dat kunnen we niet alleen."*

> *"Blockchain is een netwerk technologie en dat betekent dat je altijd het samen moet, niet alleen samen moet opzetten, maar ook samen moet gebruiken want anders heeft het geen nut. Ehm dat betekent dat je dus altijd, ook van de rest van de community afhankelijk bent om het op de juiste manier te gebruiken. Dus ik denk dat we misschien dat dat het antwoord op jouw vraag is, dat blockchain een netwerktechnologie is, en dat het ook een uitgebreid netwerk vereist en daarmee dus is er ook afstemming en meer kennis dat dat misschien is wat specifiek voor blockchain geld ja."*

Other parties found networking and learning from each other the biggest added values of the coalition.

> *"in contact komen met andere partijen, van elkaar leren, en uh, gezamenlijk kunnen optreden richting wetgeving"*

2. INCLUSION

- Coalition members are coming from different companies and organizations with completely **different working culture, regulations for information sharing and using, and communication.** They have different working routines, culture, protocols, and all of these should be taken into account. To avoid conflicts arising from this diversity, it is advised to map these differences.
- Different coalition members have **different goals to reach and motivations** to join/stay in the coalition. For some companies, the coalition is the only collaboration form they are in, while others are still cautious about the coalition.

> *" Wij hebben ook heel bewust gekozen om ook niet op 1 paard te wedden, en daarom zijn we ook actief bezig met andere pilots buiten de coalitie om, dus wij leren graag van veel dingen, dus wij hebben parallelle leertrajecten, maar als deze coalitie echt grote stappen maakt, dan zullen we er ook echt meer effort in gaan steken, dus dan gaan we meer meebewegen, meegroeien.*"

- Most interviewees felt that **the interest of their companies was represented well** in the coalition, although there were some members, who had concerns regarding that.

> *"Ik denk dat wij er nu uit de coalitie wel uithalen wat we, nou ja, naar tevredenheid zeg maar, kan altijd beter maar, gezien wat we erin stoppen en wat we eruit halen ben ik wel tevreden, maar ik ben er niet gerust op dat dat op de lange termijn ook zo blijft dus daar zullen aan moeten blijven werken. Die hele coalitie kan ook steeds, nou ja vastlopen bijvoorbeeld, of te traag gaan waardoor we ingehaald worden door de realiteit, of ehm, ten onder gaan aan de privacy discussie of weet ik veel wat, er kan nog van alles misgaan. Dus daar ben ik, daar heb ik wel wat zorgen over."*

> *"Wij zijn de enige partij van de sector, en daardoor kunnen we, denk ik, niet echt een duidelijk geluid brengen"*

For all the interviewed members it was crucial to have their interest represented, if it is not happening any more, they would stand up and leave the coalition.

- Some of the interviewees mentioned that they find **teambuilding** and **community building** extremely needed and important and that before there was not enough focus on these issues.

> *"wat ik eerder zei, de community moet sterker worden, breder, het moet meer op 1 plek gebeuren, meer in de groep, ja het moet makkelijker worden voor partijen om aan te haken, zowel partijen die in de coalitie zitten en niet al een bijdrage leveren als partijen buiten de coalitie die ook een bijdrage willen leveren, dan wel als betalend als niet-betalend lid, en hoe dat dan verder gaat... maar het moet makkelijker worden."*

- The **integration of field labs** or **use cases** is still vague in the coalition. It is a topic to be discussed how to use the field labs in the communication, but also in the learning process. One interviewee suggested to visit the field labs more often, the different field labs could provide the "home base" for the IPO or "groot IPO" meetings, instead of having all the meetings in Delft.
- The choice of Delft for the **home base** was a big issue for more interviewees, this question should be discussed if you would like to avoid huge tensions. For some members, it costs too much time to travel to Delft, for others it is more a political question (Den Hague – Delft axis, not representing the whole Netherlands). Utrecht was suggested by several members instead of Delft.
- Although members are enthousiastic about and appreciate the **management** of the coalition, based on the interviewees' opinion, there are still areas to develop.

> *"Nou daar ben ik op zich wel heel enthousiast over, want ze hebben het toch uiteindelijk voor mekaar gekregen, ondanks alle weerstand en moeilijkheden dus dat hebben ze heel goed gedaan, nogmaals ik ben ook ook wel optimistisch over de toekomst, mits ze de goede besluiten blijven nemen."*

> *"ja, eh, die hebben goed werk gedaan, tot nog toe, die hebben behoorlijk wat dingen in gang gezet eh, die als ze dat niet hadden gedaan dan was het helemaal niks geworden zeg maar ,dus dan eh, behoorlijk wat achter de schermen actief geweest, en eh, ja ik vind de fase waarin we nou komen, beetje routinematig aan het worden is prettig, dus we gaan nu echt de volgende stap in, de volgende fase in, waarbij je wellicht ook de manier waarop het gemanaged wordt mag dan ook weer mee geprofessionaliseerd worden, naar mate we in staat zijn om het routinematig aan te pakken en een beter beeld te krijgen van wat er gebeurd en wat ieders ieder individuele bijdrage kan zijn, dan kunnen we t ook wat origineler gaan managen en proberen daar weer een weg in te vinden, dus het is ook, ook daar meer denk ik eh, de bereidheid om mee te groeien, mee te ontwikkelen, belangrijker dan zeggen van we hebben t perfect gestructureerd, en vanaf nu gelden alleen maar deze regels, dus ik zie meer nog het groeien naar een professioneel team, dat heeft gewoon zijn tijd nodig, dat heb je niet zomaar in een paar maanden voor elkaar, dus dat moet je ook kansen geven, om daar, dat te laten ontwikkelen."*

> *"je kan dus zeggen van nou oké, als wij een coalitieberaad hebben van eh... van wat is het 25 mensen, nou dan hebben we een aantal subgroepen, ik noem maar even wat, die zitten met name met die groep houdt zich bezig met onderwerp A, die groep houdt zich bezig met onderwerp B, elke groep heeft z'n, heeft een bijvoorbeeld heeft een leider, maar dat hoeft niet eens per se he? Een zelfsturend systeem, en die moeten bepaalde deliverables opleveren, en ze hebben communicatie-personen aangewezen, naar de bovenkant, van de piramide, maar ook horizontaal tussen elkaar, dus je kan ook zeggen, stel dat er 6 subgroepen in het coalitieberaad zijn, dan misschien heeft iedereen wel 5 account managers, snap je? Snap je wat ik bedoel? Dan wordt het een soort netwerkje, nu gedraagt het zich niet zo."*

- Some of the interviewed members had concerns about the decision making processes. **Governance and decision making process** should be discussed, accepted by all the members.

> *"en dat vind ik wel heel apart, ineens komt er dan in de vergadering iets uit de lucht vallen van van de week heb ik die en die gesproken, oh, oké, hoezo? waarom? Dus die vragen die stel ik niet, maar..."*

> *"Er komt meer structuur, dus ik ben wel tevreden over de ontwikkeling die nu is ingezet, maar het zit inderdaad even over die besluitvorming, dus dat was wel een mooie voorzet van jou, een van de dingen waar ik een tijdje geleden een probleem mee had was dat ik dacht het lijkt wel alsof er impliciet besluiten zijn genomen, ik weet alleen niet door wie en welke. En dat wordt nu langzamerhand wel minder, maar ik ben er niet helemaal zeker van of het ook weg is. "*

> *"Laat ik zeggen, soms denk ik wel eens dat we een beetje, dit is heel erg uit de oude doos, maar dat we in het 1984 scenario terecht zijn gekomen dat sommige deelnemers meer belangrijk zijn dan andere deelnemers, we zijn allemaal gelijk zeggen we, maar is het ook zo."*

There are already **well-defined rules** in the coalition, like doing everthing open source and that the companies do not patent what is made together, but there should be **clear guidelines also about the representation of interests and companies in all decision making platforms,** who is representing whom and how to reach to that representation. Deciding on the ways of communication, to collect ideas, questions before the meeting, and send out info after the meetings.

3. INTEGRATION

- The interviewed members are in general **open to other types of knowledge** present in the coalition, which is important for the success of the collaboration. Some interviewees are more interested in the experience of other companies, in the field labs, others are more focusing on specific knowledge, e.g. legal expertise, what they are missing in their organizations, while others are interested in how the knowledge institutions see the safety issues related Blockchain.
- **Communication within the coalition** is an important issue. Members find that there is not enough communication going on between the different management layers, and the ongoing communication is still one-way, there are no channels from the "coalititeberaad" members to the IPO members or to the "programmabureau".

  "Ik heb het gevoel dat het een beetje eilandjes zijn, waar we bezig zijn, ik heb, ik zie voortdurend emails vanuit de IPOT om te kijken waar ze nou mee bezig zijn, en.. ik kreeg het gevoel van ik ben daar een beetje onderdeel van, en opeens was dat over, en ik weet niet, daar is kennelijk een soort van visiegroep geweest in de IPOT ofzo en ik weet dat ik daar nooit officieel onderdeel van was maar nu hoor ik helemaal niks meer, weet je, dus ik heb eigenlijk heen idee wat de activiteiten zijn, daar zou ik eigenlijk zelf achteraan moeten, maar ja daar heb ik dan ook weinig tijd voor, wat mij heel erg zou helpen is als er vanuit de coalitie wat meer proactief, weet ik veel, in de vorm van een nieuwsbrief, of..."

  "*Ik vind persoonlijk dat het is toch heel pragmatisch, de afstand is letterlijk gewoon dan te groot, het kost gewoon teveel tijd om even even een meeting bij te wonen."*

  "Ik heb redelijk wat discussies gehad, tenminste, ik had niet het idee dat het echt een discussie was, maar..., in ieder geval dat ik een aantal keer mijn mening heb gegeven, waarbij ik echt zoiets had van ja maar oké, ik wil aan het eind van het jaar jullie kunnen evalueren, hebben jullie goed je werk gedaan? Waar zijn jullie KPI's?" "Daar had ik een aantal keer om gevraagd en op een geven moment heb ik gezegd 'dikke neus' "

  "Ik denk dat het ook te maken heeft met het feit dat er, zoals ik er naar kijk, heel weinig gemeenschappelijkheid is, en dat maakt communicatie sowieso al bijna onmogelijk."

- Regarding what can be changed, transparency, more structure was mentioned and some interviewees suggested to include more reflection moments. Others mentioned the vision or ambition statement of the coalition as important goal still not gained. It is important to keep in mind, that as mentioned above, the different members have different motifs and interests, and also working methods. Integration of these would be needed to provide the inclusiveness of all the members. It is a great challenge, but also important task (also to provide the community feeling for the coalition members) **to integrate the different perspectives, motives, and interests into one integral story**, an identity, a vision, an ambition statement.

4. USABILITY

- In general, the interviewed members **think** that the **DBC could help them to reach their goals**, and it will not only be a "discussion group", but rather a "national Blockchain developer team".
- Although in general, the members are satisfied with the coalition, some partners are worried about the **size of the coalition**. They find it difficult to imagine how the joint work could be achieved with 50 or more coalition members.

5. REFLEXIVITY

- **Need for social robustness** is an issue, and different members thing differently about it.
- Most interviewed members agreed on that **the coalition should not only focus on the technical but also on the social scientific aspects of the technology** as well, mentioning the need for discussing, for example, the ethical issues regarding privacy.

> *"ik zou zeggen de coalitie zou zich vooral moeten richten op de sociaalwetenschappelijke aspecten, maar dat is ook wel een beetje het overheidsbelang wat ik heb, wat daar in doorklinkt, ik ben vooral geïnteresseerd in de impact van de samenleving en het persoonlijk leven van de mensen en hoe we ervoor kunnen zorgen, en dat zit ook in het creating favorable conditions, hoe we ervoor kunnen zorgen dat deze technologie een positieve bijdrage aan de samenleving levert"*

> *"ik zie de techniek zeker niet al leidend hier in, en sociaal wetenschappelijk absoluut super belangrijk, en dus ook nadenken over de fundamentele maatschappelijke veranderingen die door deze technologie mogelijk gemaakt worden, en die ook op niveau bediscussieren met elkaar die dat nodig heeft, de ethische discussies er rondomheen de privacy discussies, wat betekent dat maatschapplijk nou, wat betekent het voor de werkgelegenheid, noem het maar op. Dus een heel scala aan discussies anders dan technologie, mag voor mij gerust leidend zijn."*

Some members stated that there are more parties need to be involved, like consumer organizations and political parties and decision makers to start the social discussion about this topic, while others found it to be a task of decision makers, not the coalition.

Others mentioned that an applied version of social research would be more acceptable to them.

> *"Ik heb, maar goed dat komt omdat ik misschien meer vanuit het bedrijfsleven en minder vanuit de wetenschap denk, heb ik meer vertrouwen in de start-up aanpak dan in de zeg maar enorme wetenschappelijke studie aanpak, moet ik eerlijk zeggen, dus eh, het antwoord is ja, maar wel op een praktische manier uitgevoerd"*

- The asked members had different opinions about whether **it is an important issue what the general people think about Blockchain technology in creating successful Blockchain applications**. Some shared the idea that most people do not even care how these technologies work, but they still use these. Other interviewees found that is indeed important to take into consideration what the potential users think about the technology throughout the development.

  "*Want het algemene publiek weet bijna nooit hoe de technologie werkt, dus ook een blockchain niet, en Facebook laat wel zien dat niemand zich zorgen maakt over hoe het, hoe de technologie werkt. Dus dat is eigenlijk wel, nee. Hoe het algemeen publiek is een belangrijke, nee het is geen belangrijke factor*"

  "ik ben er vast van overtuigd dat technologie de cultuur drijft, volgens mij heeft de geschiedenis dat ook wel bewezen, maar ik denk dat wel goed is om, nou in ieder geval te onderzoeken hoe mensen tegen die dingen aankijken want dat beinvloed uiteindelijk weer hoe je het gaat invoeren ofhoe je het succes van een technologische applicatie groter maakt."

  "Dus die acceptatie, die publieke acceptatie die gaat niet, die gaat zeker niet werken als je dit als een technologie kunstje in gaat voeren, dus hiervoor geldt eigenlijk ook cruciaal het betrekken van stakeholders in het ontwikkelen van toepassingen, is essentieel."

  "publieke opinie moet je sowieso mee krijgen om dit voor elkaar te krijgen, ik denk wel dat het sterk afhankelijk is van hoe het ingericht gaat worden, als we straks de Europese wetgeving erop gaan gooien dan denk ik van ja, waarom doen we dit project dan, want dat lijkt me zinloos"

THE RESULTS OF THE MINOR TEAM

THE DBC IN THE MINOR COMMUNICATION DESIGN FOR INNOVATION

During the minor Communication design for Innovation, a multidisciplinary team of students received the case of the Dutch Blockchain coalition. Their goal was to implement the results of our pilot research to the communication plan of the coalition. They have analyzed the communication-related issues and have developed a strategy. This strategy is explained in the following sub-chapter.

FOR THE FUTURE ROBUST ADAPTIVE COMMUNICATION AND COMMUNICATION PROFESSIONALS

For the future IPO could be imagined as a platform on which experts from the various domains of Blockchain development would meet to discuss their shared concerns, shared challenges for future Blockchain technology and their mutual interest. A time and place for truly discussions between delegates of the various DBC partners. Also issues obtained from the various DBC field labs could be discussed and send feedback into the field labs.

The IPO collaboration as such is not meant to just overcome differences; rather it is meant to make these differences between partners' ideas much more explicit, tensions to learn upon in agile way. Therefore the communicative heartbeat of IPO actually is a collaborative network of experts in the midst of the Blockchain innovation. Seen from the whole of the network all the issues concerning Blockchain are discussed, however on the micro-level of the various nodes in the network a variety of topics is discussed at learned upon at the same time. This results into an adaptive, flexible network for innovation which more easily can (pro)react on changing frames and upcoming collaborative issues. Only through mutual trust, openness between DBC partners could this be possible.

IPO as a template of networked communication and governance could be a stepping stone for the further development of DBC and therefore a socio-technical lead for the grand challenge of Blockchain. Eventually, de DBC will be 'dot-connected' network.

As we have learned from the pilot (framing analysis, collaboration readiness interviews and minor team efforts) the DBC professionals long for such a network, it is possible from a collaboration readiness theoretical point of view, it is achievable as we know by communication design.

CONCLUSIONS

The Dutch Blockchain Coalition, as an innovation network, is a complex system of collaborating partners. Based on scientific literature on transdisciplinary, multi-sector collaborations we systematically investigated distinct factors that could pay a crucial role in the success of these collaborations. Based on the results of the interviews performed with several members of the coalition, we could identify issues that can lead to tensions within the coalition members.

LIST OF IMPORTANT ISSUES RELATED TO COLLABORATION READINESS

These issues are:

- Although the coalition is at the moment in the transition from the **formulation to the sustainment stage**, most of the members would like to speed up the process and already gain results as soon as possible (they would be at the middle of the sustainment stage and get results as soon as possible). Due to this need for speed, some of the important foundation's steps were simply skipped, and that lead to the rise of some tensions in different areas.
- The **tasks and responsibilities** are not specified nor described. Although the coalition members (not the management group) in general did not really have specific tasks within the DBC, they had a strong feeling of **responsibility** to participate in the coalition.
- The coalition members are highly committed (gave in general 4 out of 5 for commitment) to make together the coalition a great success.
- One of the mostly appreciated **added values of the coalition for the member companies** is that it brings together the parties involved in Blockchain development. Most of the interviewees stated that the technology itself needs collaboration for its development. Other parties found networking and learning from each other the biggest added value of the coalition.
- Coalition members are coming from different companies and organizations with completely **different working culture, regulations for information sharing and using, and communication.** They have different working routines, culture, protocols, and all of these should be taken into account.
- Different coalition members have **different goals to reach and motivations** to join/stay in the coalition. For some companies, the coalition is the only collaboration form they are in, while others are still cautious about the coalition.
- Most interviewees felt that **the interest of their companies was represented well** in the coalition, although there were some members, who had concerns regarding that.
- Some of the interviewees mentioned that they find **teambuilding** and **community building** extremely needed and important and that before there was not enough focus on these issues.
- The **integration or acknowledgement of field labs** or **use cases** is still vague in the coalition.
- The choice of Delft for the **home base** was a big issue for more interviewees. For some members, it costs too much time to travel to Delft, for others it is more a political question (Den Hague – Delft axis, not representing the whole Netherlands). Utrecht was suggested by several members instead of Delft.
- Although members are enthousiastic about and appreciate the **management** of the coalition, based on the interviewees' opinion, there are still areas to develop.

- Some of the interviewed members had concerns about the decision making processes.
- The interviewed members are in general **open to other types of knowledge** present in the coalition, which is important for the success of the collaboration. Some interviewees are more interested in the experience of other companies, in the field labs, others are more focusing on specific knowledge, e.g. legal expertise, what they are missing in their organizations, while others are interested in how the knowledge institutions see the safety issues related Blockchain.
- **Communication within the coalition** is an important issue. Members find that there is not enough communication going on between the different management layers, and the ongoing communication is still one-way, there are no channels from the "coalititeberaad" members to the IPO members or to the "programmabureau".
- In general, the interviewed members **think** that the **DBC could help them to reach their goals**, and it will not only be a "discussion group", but rather a "national Blockchain developer team".
- Although in general, the members are satisfied with the coalition, some partners are worried about the **size of the coalition**. They find it difficult to imagine how the joint work could be achieved with 50 or more coalition members.

  Need for social robustness is an issue, and different members thing differently about it. Most interviewed members agreed on that **the coalition should not only focus on the technical but also on the social scientific aspects of the technology** as well, mentioning the need for discussing, for example, the ethical issues regarding privacy. Some members stated that there are more parties need to be involved, like consumer organizations and political parties and decision makers to start the social discussion about this topic, while others found it to be a task of decision makers, not the coalition. Others mentioned that an applied version of social research would be more acceptable to them.

  The asked members had different opinions about whether **it is an important issue what the general people think about Blockchain technology in creating successful Blockchain applications**. Some shared the idea that most people do not even care how these technologies work, but they still use these. Other interviewees found that is indeed important to take into consideration what the potential users think about the technology throughout the development.

ADVICE ON HOW TO SOLVE THESE ISSUES

Based on our expertise in this subject and the scientific literature this report is referring to, we formulate the following recommendations to take into account to provide a better joint work within the coalition.

- Take your time to reflect on the decisions made in the foundation stage. Important decisions have to be transparent and clear for all members, and ideally include everyone's opinion or vote when making these decisions on governance, leadership, representation of interests.
- Make your members formulate their tasks clearly and provide the possibility for the others to have access to who is responsible for what.
- Be open to incorporate all the diverse knowledge, expertise, perspectives and motifs that are present in the coalition. This does not mean to make consensus on each and every decision, but be open to listen to the diversity of thoughts and try to include them in as many aspects as possible.
- To avoid conflicts arising from the diversity of the members, it is advised to map these.
- Be aware that for the members it is crucial to have their interest represented, if it is not happening any more, they would stand up and leave the coalition.
- Find out how general is the need for team – or community building, and discuss this issue with the members. If this is a general issue, consider organizing these kinds of activities.
- It is advised to discuss how to use the field labs in the communication, but also in the learning process of the coalition. One interviewee suggested to visit the filed labs more often, the different filed labs could provide the "home base" for the IPO or "groot IPO" meetings, instead of having all the meetings in Delft. This resonates also with the issue of home base. We suggest starting this discussion again to find a common, satisfying solution, as this looks like a sensitive problem for some members.
- As concerns were arising regarding governance and decision making, it is good to see that the management of the coalition is taking this issue already serious. A working group was creating including governance experts and members who volunteered to be part of it. Our advice in this field of interest is to create **clear guidelines also about the representation of interests and companies in all decision making platforms,** including decisions on the ways of communication, how to collect ideas, questions before and after the meetings.
- Social robustness in our opinion is a critical issue. We advise the coalition to spare some time to start a discussion about it. We can be partners in organizing such an intervention. Based on the result of this discussion, we advise the coalition to make plans to start a two-way dialog with external stakeholders, like potential customers and the society as such. We could also be partner in planning and organizing communication activities in this area.

ADVICE ON COMMUNICATION ISSUES

We see Science Communication as an integral and crucial process of collaborations. It should not be an additional thing to worry about, but should be an essential part of each and every stage of collaborations, and should also focus on internal communication as well. Based on our observations and the interviews, there are critical issues regarding the internal communication.

Our proposed adaptive innovation model (represented in Figure 4) suggests a two-way communication with different stakeholders, like potential customers, the society represented in specific groups like patent organizations, and the media. But adaptiveness is not limited to the outer stakeholders. Based on our pilot, we suggest to examine the internal communication practices within the coalition and to define "rules of the game" how to integrate all the stakeholders, all the interests, knowledge and opinions into the decision making processes and into the representation of interests. We advise the coalition to take moments for self-reflection, to evaluate the current practices and to incorporate suggestions, potential solutions from different members. Listen to your members, do not only share information, but start discussions and integrate different ideas and perspectives, because these members value the coalition, and they are willing to pay money and spend working hours to reach the common goal of the coalition, to be the leading group of Blockchain development.

Our final advice on the coalition's communication plans is to see communication as an organic part of the collaborative work and to think about is a complex network of activities, all of which should be aligned to the identity, vision, mission and goal of the coalition. Because communication in a collaborative environment is not just making newsletters, building a website, but to connect and align all the activities with the communication mean.

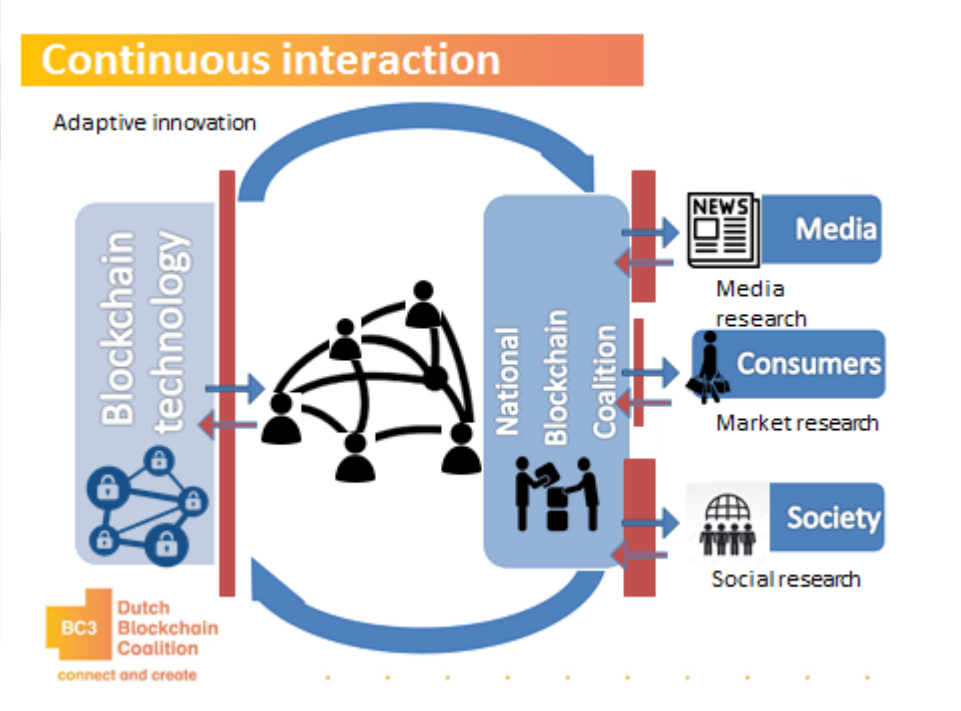

FIGURE 4: ADAPTIVE INNOVATION MODEL SUGGESTED BY SCIENCE COMMUNICATION LITERATURE

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