D1.4.1
Social Innovation Strategy

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Task	**T1.4 Social Innovation Strategy**
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Project PLAYTIME

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1 Introduction

Dementia is a broad category of neurocognitive disorders characterized by a long term and often gradual decrease in the ability to think and remember. Other symptoms include impaired language, personality changes, emotional problems, behavioral disturbances, and decreases in motivation (Prince, Albanese, Guerchet, & Prina, 2014). Advancing age is the main risk factor for most forms of dementia, and with the ever increasingly aging population, the prevalence of dementia worldwide is expected to nearly double every 20 years to 65.7 million in 2030 and 115.4 million in 2050 (Prince et al., 2014). This expected increase will place additional pressure on the costs connected to the care of dementia, and will result in an extension of care in the home environment, relying on informal caregivers (Knapp, Lemmi, & Romeo, 2013).

Assistive technology has been identified as one tool that can be used to improve independent living at home and support the quality of life of people with dementia and their informal caregivers (Cahill, Macijauskiene, Nygård, Faulkner, & Hagen, 2007). Although a range of assistive technologies already exist to support this target population, their potential is still underutilized. For one, people living with dementia perceive that newly developed products insufficiently met their needs (Lauriks et al., 2007). Moreover, existing assistive technologies are too expensive and often too difficult to be used by people with dementia (Roeg, Snaphaan, Bongers, 2013; Astell et al., 2010). Next to this, assistive technologies with regard to interventions in specifically (e.g. sensory stimulation, cognitive stimulation) have involved unimodal therapy and have demonstrated limited effectiveness (Buschert et al., 2011; Gräßel, Wiltfang, & Kornhuber, 2013).Therefore, new assistive technologies need to be developed in order to provide people living with dementia with appropriate support. The AAL funded project Playtime, for example, responds to this by developing an integrated theratainment innovation of personalized, emotion-oriented and multi-model training modules to stimulate cognitive processes, to address physical activities and foster social inclusion of people living with dementia.

The development of assistive technologies for people living with dementia requires social rather than technological innovation: “innovative activities and services that are motivated by the goal of meeting a social need and that are predominantly diffused through organizations whose primary purposes are social” (Mulgan Tucker, Ali, & Sanders, 2007, p. 8). Characterized by user-value, social innovation exhibits a close psychic distance between providers and users, and a significant degree of interactivity or co-production.

Social innovation often takes place in inter-organizational networks (Bekkers et al., 2013; Gloor, 2005; Bommert, 2010; Sörensen & Torfing). Research shows that the use of this mode of governance is attributable to two factors. First, complex and sometimes even ‘wicked’ problems, such as dementia, require a much more open innovation process, where various organizations collaborate to bring together complementary expertise and resources (Lee, Park, Yoon, & Park, 2010). Second, scaling up innovations in public sectors has more challenges compared to private sectors, due to hierarchic structures, resistance to change and risk avoidance, which hinders the adoption process of potential users (Micheli, Schoeman & Goffin, 2012). Since resources come from multiple organizational sources and collaboration between private and

public sectors seems conductive to scaling-up innovations (Glasgow et al, 2012; Micheli et al., 2012) a network response is called for. For this reason, eight organizations (i.e. healthcare organizations, knowledge institutions and companies) from three different European regions collaborate within the project Playtime to develop and scale-up a multi-model theratainment innovation for people living with dementia.

Despite the importance of inter-organizational networks to develop assistive technologies for people living with dementia, they frequently fail to live up to expectations: failure rates that exceeds 50 percent are not uncommon (e.g. Hughes & Weiss, 2007; Duysters et al. 2012). Research suggests that these failure rates can be attributed to a number of factors, including: lack of organizational fit in terms of compatible cultures, decision-making processes, and systems, lack of trust inappropriate choice of governance structure, inability to manage conflict et cetera. There is also some evidence that network failure is often tied to a lack of experience on the part of the organization with respect to forming and managing inter-organizational networks (Kale, Dyer, Singh, 2002). Together, these findings indicate that effective inter-organizational networks are difficult to develop.

Given the preceding paragraphs, it is clear that understanding how effective inter-organizational networks can be developed is an important and intriguing question in developing and scaling up assistive technologies for people living with dementia. This study therefore systematically analyzes the first seven months of collaboration between the partner organizations of Playtime. In doing so, this study aims to gain insight in what is needed to develop an effective inter-organizational network, and the difficulties in doing so. Simultaneously, the project is used to overcome these difficulties: the obtained results will directly be fed back and implemented into the project.

The collaboration between the partner organizations of Playtime is analyzed through several qualitative and quantitative methods, mainly guided by the model of Kaats and Opheij (2014). Their conceptual model consists of five different conditions required for effective inter-organizational collaboration, including: (1) shared ambition, (2) mutual gains, (3) relationship dynamics, (4) organization dynamics, and (5) process management

2 Theoretical Framework

In order to 'set the stage', this chapter provides an exploration of the concepts central to this study. In section 3.1, a description of social innovation is provided, followed by a description of the process of social innovation. Section 3.2 ends this chapter by exploring five conditions for network effectiveness.

2.1 Social Innovation

Although the term innovation is defined in many different ways in the literature, it can broadly be described as "the generation, acceptance and implementation of new ideas, processes products or services" (Thomson's, 1965, p. 2). This description differentiates innovation form improvement, which implies only incremental change; as well as from creativity and invention, which are vital to innovation, but miss out the hard work of implementation and diffusion (Mulgan et al., 2007). Social innovation can be defined as "innovative activities and services that are motivated by the goal of meeting a social need and that are predominantly diffused through organizations whose primary purposes are social" (Mulgan et al., 2007, p. 8). Several authors mentioned that participation of end-users and other relevant stakeholders within the process is crucial in order to develop, implement and adopt need-driven innovations (e.g. Bekkers, Tummers, Stuijfzand, & Voorberg, 2013; Mulgan et al., 2007; Bommert, 2010; Sörensen & Torfing, 2011; Lee, 2012). Hence, social innovation can be considered as the outcome of an open process of co-creation: relevant stakeholders bring in their resources so that they can be recombined in order to produce innovative outcomes that are relevant to them (Bason, 2010; Lee, Hwang, & Choi 2012).

Studies reveal that the process of social innovation is complex and non-linear (Fagerberg, 2006). However, some patterns of similarity in the progress of these events can be observed (e.g. Van de Ven et al, 2008; Rogers, 2003; Osborne & Brown, 2005; Damanpour & Schneider, 2009). Murray, Caulier-Grice, and Mulgan (2010) identified the following six different periods during social innovation processes: (1) prompts, inspirations and diagnoses, (2) proposals and ideas, (3) prototyping and pilots, (4) sustaining, (5) scaling and diffusion, (6) systemic change. The first stage involves the diagnosis of problems and framing the question in such a way that root causes will be identified, rather than the symptoms of the problem. The second stages involve idea generation. Murray et al. (2010) suggest several formal methods (such as design or creativity methods) that help to draw in insights and experiences from a wide range of sources. The third stage involves the testing of the social innovation in practice through different prototyping methods or more informal methods. The fourth stage, the sustaining stage, is when the idea becomes an everyday practice. This involves identifying income streams for the firm, social enterprise or charity that carries the social innovation forward or, in the public sector, the identification of budgets and other resources such as legislation. The fifth stage of social innovation, scaling and diffusion, involves different ways for growing and spreading innovations such as organizational growth or, in the public sector, the mobilization of demand by

policymakers. The sixth stage of social innovation is the stage of systemic change, which is the ultimate goal of social innovation. Systemic changes often involve changes in the public sector, private sector, grant economy, and household sector.

2.2 Conditions for network effectiveness

Social innovation often takes place in inter-organizational networks (Bekkers et al., 2013; Gloor, 2005; Bommert, 2010; Sörensen & Torfing, 2011). Inter-organizational networks, also referred to as partnerships, strategic alliances, consortiums, or collaborative arrangements, are consciously created groups of three or more autonomous but interdependent organizations that strive to achieve a common goal and jointly produce an output (Raab & Kenis, 2009). In the literature on inter-organizational networks, little work on the evaluation of the effectiveness of inter-organizational networks has been done (Provan, Fish, & Sydow 2007; Turrini, Cristofoli, Frosini, & Nasi, 2010). As Cameron (1986) pointed out, determining the effectiveness of a social system is tricky and "agreement about effectiveness is mainly agreement to disagree" (p. 544). This is caused by the fact that the concept of effectiveness is bound to theory and can encompass very different approaches depending on the tasks and goals of the network, the stakeholders, or the focus of the researcher (Cameron, 1986). One approach to evaluate the effectiveness of inter-organizational networks is provided by Kaats and Opheij (2014). Their conceptual model consists of five different conditions required for effective inter-organizational collaboration, including: (1) shared ambition, (2) mutual gains, (3) relationship dynamics, (4) organization dynamics, and (5) process management (see Figure 1). The model is grounded on a solid base of literature in which the different conditions have been described by various authors (Valentijn et al., 2015). Below, each of these conditions is further explained.

2.2.1 Shared ambition

Developing a clearly stated shared ambition (e.g. vision, mission and goal) is according to Kaats and Opheij (2014) one of the essential aspects of an effective inter-organizational network. A shared ambition is needed to serve as a beckoning perspective and to give the partners in the network the necessary perspective. Important questions regarding the ambition of an inter-organizational collaboration are 'what is important to each of the partners, to each organization and to us individually?' and 'should the aim of one of the parties prevail? Or do we follow the logic of the network in pursuing a shared ambition?' This is a matter of proper alignment of the strategies of the different partners, the strategy for cooperation and the strategy of the inter-organizational network. Next to this, the ambition not only needs to be shared, but must also add value, be suitable for, and be attractive to all involving partners in the network (Kaats & Opheij, 2014).

2.2.2 Mutual gains

Closely related to shared ambition is the mutual gains condition, which refers to the dialogue about the underlying organizational and individual interests of the partners to provide an ideal win-win solution. Kaats and Opheij (2014) stated that important questions in doing justice to partners interests are 'how can we reach an agreement that does justice to all the different interests?', 'how do we get a constructive dialogue going, aimed towards a common solution? and 'how should we organize negotiations on points that we know we will be unable to reach

agreement in the end?' (Kaats & Opheij, 2014). To be able to give interests a central position in the collaboration, a number of conditions must be fulfilled, including a context of reliability and trust, a shared point of departure in language and information, a sincere concern for the interests of other partners, room and willingness for negotiation, and developing the art of collective thinking in dialogue (Kaats & Opheij, 2014).

2.2.3 Relationship dynamics

Another important aspect in the literature is the relational capital among partners, defined as relational dynamics. It is argued by Kaats and Opheij (2014) that close interpersonal ties between the partners can act as an effective mechanism to build mutual trust and respect within a partnership. Trust is according to them a special point of interest, because the different partners continue to weigh up the actions and reactions of the other partners in situations of uncertainty. Trust also has an interpersonal aspect, which plays a decisive role in the extent to which the partners have the personal ability to connect and to which constructive group dynamics have been established (Kaats & Opheij, 2014). In this regard, a collaborative leadership style is mentioned by Kaats and Opheij (2014) as one of the key issues in any inter-organizational network.

2.2.4 Organization dynamics

Kaats and Opheij (2014) also suggest that formal governance mechanisms, defined as organizational dynamics, are essential in facilitating collaborative action to achieve shared goals within an inter-organizational network. These organization dynamics involve an effectively functioning structure, aligned with the partners' objectives, clear agreements and the adequate fulfillment of these agreements, sufficient participation and support of managers, professionals and stakeholders, and decisiveness in realizing the intended results and mobilizing partners to take action.

2.2.5 Process dynamics

Finally, Kaats and Opheij (2014) also focus on the importance of process management in order to facilitate the complex and delicate nature of forging an inter-organizational network. They refer to this as a sense-making process with questions about governance and process: 'how can we do the right things at the right time?', 'what role does each individual play, who directs the process? and 'how do we safeguard the quality of interaction together?'.

In this regard, important success factors of process management are clear division of roles, clear and objective-oriented sequencing of events, and attention to both content and process aspects of the network as well as process quality and process effectiveness (Kaats and Opheij, 2014).

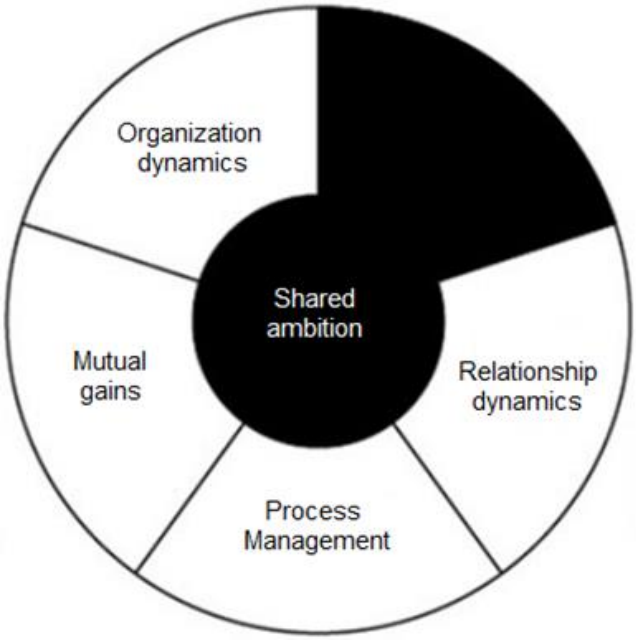


Figure 1. *Conditions for inter-organizational collaboration (Kaats & Opheij, 2014).*

3 Methods

This chapter outlines the methods that were used to systematically analyze the first seven months of collaboration between the partners of Playtime. The research context is presented in section 4.1, followed a description of the research design in section 4.2. Eventually, section 4.3 describes each of the main strategies for data collection and analysis: questionnaires and semi-structured interviews.

3.1 Research context

This study was performed within the first seven months of the AAL funded project Playtime (from 1st May 2017 till 1st December 2017). In this three-year project, eight organizations from three different European regions collaborate to develop an integrated theratainment innovation of personalized emotion-oriented training modules for people living with dementia. The eight organizations involve Geestelijke Gezondheidszorg Eindhoven en de Kempen (GGZ), research institute Tilburg University (TIU), and the company McRobers (MCR) from the Netherlands; research institute Ghent University (GEU) and company MindBytes (MBY) from Belgium; and healthcare institute Sozialverein Deutschlandsberg (SVD), research institute JOANNEUM RESEARCH (JRD) and company Famel (FAM) from Austria.

The governance structure of Playtime can be characterized as a lead organization network, in which all major network-level activities and key decisions are coordinated through and by a single participating member, acting as a lead organization (Provan & Kenis, 2009). The role of lead organization is performed by JRD, who provides the administrative, financial, and technical coordination for the project and facilitates the activities of the partner organizations in their efforts to achieve the project goals. The project coordinator also organizes a general telephone conference call once every two weeks. Next to this, communication and coordination is facilitated by plenary meetings, site visits, telephone conference calls, and an online document sharing system.

The general management approach of Playtime is based on a project management structure. The work is divided in seven Work Packages (WP), each of which has been assigned a project member as WP Leader. The WP Leaders is responsible for managing the execution of the work in the different tasks associated with their WP. They are also responsible for the performance of their associated operative partners in the WP and have to manage the resources allocated to them. At this moment, the tasks in the work packages are associated with the first and second stage of the social innovation process of Murray et al. (2010), namely: (1) prompts, inspirations and diagnoses and (2) proposals and ideas.

3.2 Research design

Because relatively little knowledge is available on developing effective social innovation networks, an exploratory design was chosen. More specifically, this study can be characterized as a mixed methods single case study design using several qualitative and quantitative research methods to analyze the project Playtime: project documents are analyzed, individual interviews are held, questionnaires are submitted, and participative observations during plenary meetings, teleconferences, and presentations of study results are performed. Analyses for this study only include the data collected by questionnaires, semi-structured interviews, and participant observation during presentations of study results.

3.3 Data collection

3.3.1 Questionnaire I

As a first orientating step, a self-constructed questionnaire was used to increase understanding on the roles, contributions and outputs of each partner organization of Playtime. The questionnaire contained six short open-ended questions and was sent to all project members. An example question is: *"Which contribution/expertise do you expect to bring to the project Playtime?"* (see Appendix I). The results of this questionnaire were presented at the kick-off meeting of the project in May 2017. During this presentation, detailed field notes were made of project members' comments and dialogues.

3.3.2 Questionnaire II

After presenting the results of questionnaire I, it seemed that several issues remained unclear for project members. Therefore, in August 2017, questionnaire based on the model of Kaats and Opheij (2014) that was developed and validated by Valentijn et al. (2015) was used to analyze the inter-organizational network of Playtime from a broader perspective. For each condition (share ambition, mutual gains, relationship dynamics, organizational dynamics and process management), active project members needed to indicate the extent to which (s)he agreed with a number of statements. Example statements are: *"Is the ambition shared among the partners?", "Do the partners have sincere interest in one another's interests?"*, *"Do the partners trust one another?", "Are the agreements of the partnership clea*r?" and *"Are the roles clearly divided within the partnership?"* The questionnaire uses four response categories not at all, little, mostly and totally, ranging from 1 (not at all) to 4 (totally) and 5 (don't' know) (see Appendix II). An active project member was defined as any member who was present at plenary meetings and/or during general telephone conference calls.

The questionnaire of Valentijn et al. (2015) was supplemented with a conventional network measure of tie strength (Hansen, 1999) in order to create a comprehensive view of the relationships and information flows between the partners of Playtime. After providing a list of all partner organizations, project members were asked to indicate the intensity of their connection in terms of interaction frequency *("How often did you communicate with each partner?"*) and

closeness *("How close was your working relationship with each person?"*) on a 1-7 Likert scale (see Appendix II).

3.3.3 Semi-structured interviews

Following the questionnaire, a total of 9 semi-structured interviews were conducted in October 2017, mainly to gain more insights into the five conditions of the model of Kaats and Opheij (2014). In general, at least one active member of each partner organization (12 project members in total) was asked to evaluate and describe the project Playtime with respect to these five conditions. Project members were, for example, asked to describe their ambitions and interests to collaborate in Playtime, the relationships among the partners of Playtime, the division of roles between the partners of Playtime, and the fulfillment of the agreements that were made (see Appendix III). In addition, results of questionnaire II were fed back and project members were asked to explain some of their answers to this questionnaire. The semi-structured interviews were mainly held via Skype and were audio-recorded for the convenience of transcribing. The results of the semi-structured interviews were presented at a plenary project meeting in November 2017. During this presentation, detailed field notes were made of project members' comments and dialogues.

3.4 Data analysis

3.4.1 Questionnaire I

The open-ended responses of questionnaire I were analyzed by general coding techniques: responses were read and each comment was labelled with one or more categories.

3.4.2 Questionnaire II

The data of the questionnaire of Valentijn et al. (2015) was summarized and analyzed with the statistical software package SPSS 19. For each of five conditions of the model of Kaats and Opheij (2014), several descriptive statistics were computed, including mean, minimal and maximal score, standard deviation, and range. The response category 'don't know' was rated as an missing value.

Subsequently, individual responses from Hansen's' (1999) tie strength measure were aggregated to the organization level by taking the average of the frequency and closeness scores for each respondent and then taking the average score between all respondents of each pair of partner organizations. The data was treated as undirected, since the purpose was to create a comprehensive view of the relationships and information flows between the partners of Playtime. After the data was put into an adjacency matrix, Visone 2.6.2 was used to convert the adjacency matrix into a social network visualization. This visualization was used to map the strongest ties in the networks (by making use of tie strengths), identify the most central actor in the network (based on degree centrality scores), and identify different cliques in the network of Playtime.

3.4.3 Semi-structured interviews

In order to analyze data from the semi-structured interviews correctly, audio-recorded interviews were verbatim transcribed. After transcribing, raw data the transcripts were directly uploaded to NVivo11. NVivo11 was then used to enable systematic theoretical coding by opting Boeije's (2010) Spiral of Analysis. In detail, this meant that raw data was transformed into theoretical sensitive results by three types of coding; thematic, axial and selective coding. The first step, thematic coding, was concerned with reading all the documents and highlighting fragments of text. Consequently, the relevant fragments were compared and divided into categories that were labeled with a code. This resulted in a coding scheme. The second step involved a more abstract categorization of the selected quotes. Several rounds of coding were employed, resulting in a specification of properties and dimensions of a category (axial coding). The final step entailed selective coding, where core categories were selected and connections between categories were established (Boeije, 2010).

4 Results

In this chapter, the results of the systematical analyses of the first seven months of collaboration between the partner organizations of the project Playtime are presented. Results are based on questionnaires, semi-structured interviews and participant observations during presentations of study results.

4.1 Questionnaire I

A total of 7 project members filled in questionnaire I. Results of this questionnaire revealed that project members seemed to have most insights in their own contribution to the project as answers to the question "*Which contribution/expertise do you expect to bring to the project Playtime?"* were most extensive and detailed. Project members provided, for example, the following contributions: *"knowledge on dementia, user-centered co-design, and social innovation"*, "*tracking and analysis of eye movement and other related human factors*", and "*expertise in serious game design for caregivers with family members having dementia*". In contrast, the questions "*What is the current role of your organization in the project Playtime?*" and "*What output do you expect to deliver during the project Playtime?*" seemed to be more difficult to answer for project members. Most answers were general in nature and/or were even missing. The following answers were, for example, provided with respect to project members' role: "*project employee*", "*implementation of Work Package*", and "*development and distribution*".

The results of questionnaire I were presented at the kick-off meeting of the project. During this presentation, project members indicated that they found it difficult to fill in questionnaire I. They explained this by two primary reasons: (1) difficulties in identification with the project and product of Playtime, and (2) lack of clarity in benefits for project partners and persons with living dementia (i.e. *"What's in it for me?"*).

4.2 Questionnaire II

Questionnaire II was filled in by a total of 9 project members. Results of this questionnaire showed that project members on average mostly agreed with the statements for each of the five conditions ($\bar{x} = 3.09$), thereby suggesting that the collaboration between the partners of Playtime was evaluated generally positive. However, when considering the range of each of the five conditions, the values indicate that project members' answers are not aligned, especially with respect to mutual gains and organization dynamics (see Table 1).

Table 1. *Descriptive statistics questionnaire II.*

	N	Min	Max	Mean	SD	Range
Shared ambition	9	2.67	3.50	3.15	0.28	0.83
Mutual gains	9	2,67	4.00	3.07	0.39	1.33
Relationship dynamics	9	3.00	3.50	3.25	0.19	0.50
Organization dynamics	9	2.67	4.00	3.11	0.40	1.33
Process management	9	2.60	3.33	2.89	0.21	0.73

The individual results of questionnaire II were discussed with project members during the semi-structured interviews. Here, it was revealed that project members had difficulties with filling in the questionnaire of Valentijn et al. (2015), mainly because of the early stage of the project.

Questionnaire II also entailed Hansen's (1999) network measure of tie strength. Based on the calculated tie strength between each pair of partner organizations of Playtime, a social network visualization could be constructed (see Figure 2). This visualization showed that partner organizations of Playtime had strong connections with partners of their own county (SVD-JRD-FAM, TIU-GGZ-MCR, and GEU-MBY) (the darker ties indicate stronger connections). The most central actor in the network is lead organization JRD, who had obviously the most strong connections with all other partners in the network.

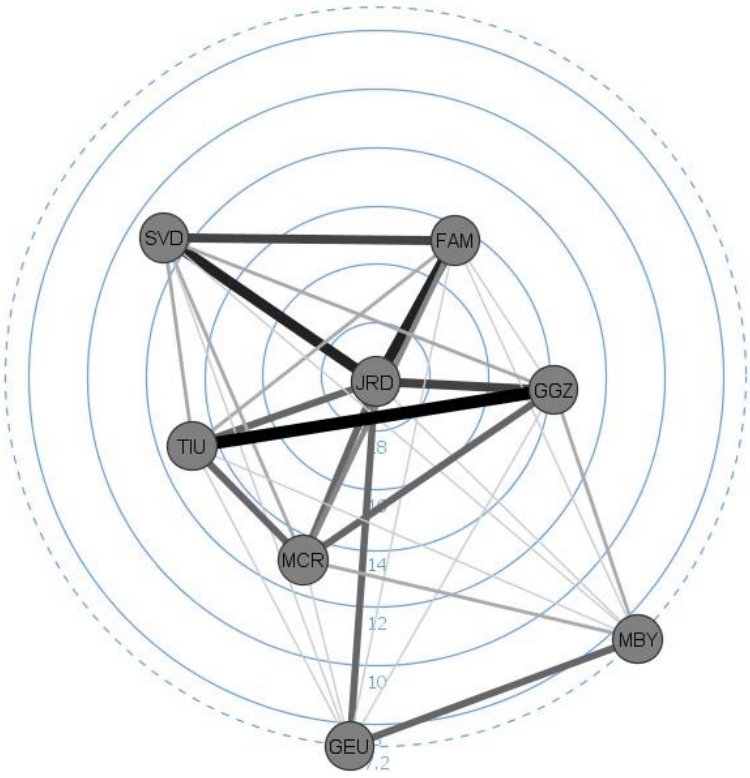


Figure 2. *Social network structure of Playtime based on degree centrality (August/September 2017).*

The results of questionnaire II were presented and discussed at a plenary project meeting in November 2017. During the discussion, it appeared that the social network structure of Playtime (Figure 2) increased project members' understanding of the current relationships: project members realized that certain connections need to be improved and decided that the technical partners (MBY, MCR and FAM) needed to communicate more frequently with each other.

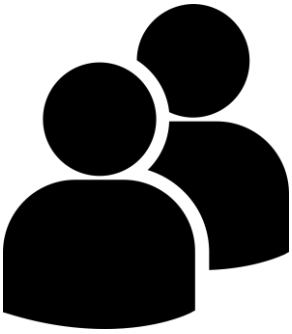
4.3 Semi-structured interviews

4.3.1 Shared ambition

Results of the semi-structured interviews showed that partner organizations have various ambitions to collaborate within the project Playtime. These individual ambitions included amongst others:

- To develop Amicasa
- To include a socio-emotional component
- To include a movement component
- To evaluate Playtime in a real training situations
- To apply artificial intelligence
- To investigate the relationship between cognition, emotion and social factors
- To disseminate knowledge by scientific publications
- To support people living with dementia
- To apply expertise on user-centered design
- To create a social innovation climate

Next to this, the semi-structured interviews revealed that a clearly stated shared ambition was not yet developed: 6 out of 12 project members did not know if partner organizations shared the same ambition or believed that the ambition was shared to less. The quotes below reflected this very clearly.



"I do not feel that everybody gives priority to the ambition of Playtime. I do believe that there are many other ambitions that can contribute to Playtime, but if we are not careful these ambitions may prevail. Sometimes I am afraid for this." – Project member 8.

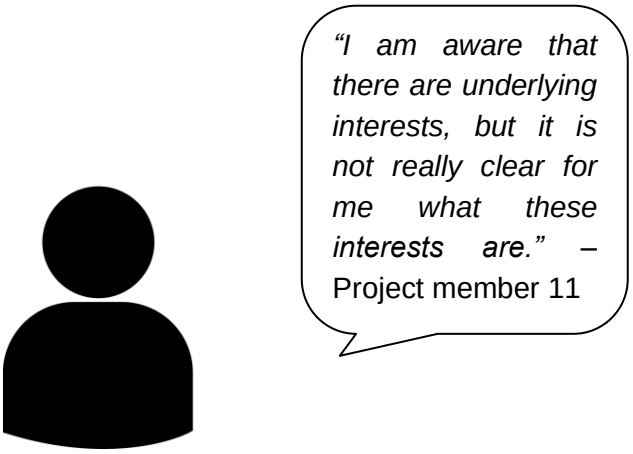
"I do not know if there is a shared ambition. I hope so." – Project member 6.

4.3.2 Mutual gains

Project members were also found to have a wide range of interests to collaborate within the project Playtime. These interests included amongst others:

- To increase collaboration opportunities for other projects
- To use product developments in other projects
- To generate revenues
- To support and entertain people living with dementia
- To receive input from other organizations and/or people living with dementia
- To improve own product
- To continue research track
- To increase organizational visibility

Nevertheless, these interests did not have a central position in the project: most project members indicated that they had no insights in the underlying interest of other partners, as reflected by project member 11.



4.3.3 Relationship dynamics

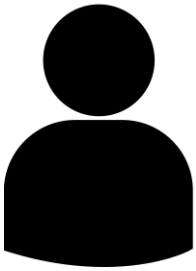
The relationships dynamics among the partners of Playtime were found to have a good basis as project members described these as following: openness, friendliness, commitment, willingness to listen to each other, goodwill, positive atmosphere, and/or constructive. Despite this basis, semi-structured interviews showed that partners' interpersonal ties had room for improvement. As in line with the results of Hansen's (1999) questionnaire, project members indicated that they had most frequently contact with partner organizations of their own country, mainly due to past relationships and geographical proximity. Face-to-face meetings were therefore mentioned to be the best way of building more intense relationships.

"The interactions I have had with different partners were very constructive, friendly. I think that there is a lot of openness to learn from each other." – Project member 12.

"As a whole, say: as group, I think that collaboration can be better. We have sometimes a Skype and that is it." – Project member 7.

4.3.4 Organization dynamics

With regard to this condition, three topics came forward during the semi-structured interviews. First, the project management structure of Playtime was found to work well. Project members explained, for example, that this structure was very efficient, allowed to bring in different expertise's, and ensured that everybody was actively involved in the project. Second, the leadership role of JRD was also evaluated positively by project members. They emphasized that JRD really took the lead by arranging a good communication structure, bringing the different Work Packages together, and making sure that agreements and deliverables were fulfilled. Finally, semi-structured interviews showed that agreements were clear, but not always realized on the appointed time.



"They really take the lead. That gives confidence for the consortium and also sufficient energy to continue to work with each other." – Project member 9

4.3.5 Process dynamics

Results with respect to the final condition, process dynamics, particularly relate to the division of roles. Semi-structured interviews showed that project members had not always insight in the roles of other partner organizations, especially with respect to the roles of MBY and GEU, and the interconnected roles of GGZ and TIU. Next to this, some project members also experienced that roles within Work Packages were not always clearly divided, as reflected by the quote of project member 10.

"If I know which input I receive, what I have to do, and how much time I have, I can organize my internal process very well. And sometimes it is not yet clear what I have to do." – Project member 10.

"We do not know the other roles." – Project member 1.

The results of the semi-structured interviews were presented at a plenary project meeting. During this meeting, it was emphasized that this approach enabled an open discussion as most of the presented topics were "*taboo*". Project members mainly discussed their shared ambition and division of roles, which were both mentioned to need further specification. Most interestingly, each partner organization's role was during this meeting further specified by defining it from the perspective of the others. This resulted in clearly defined partner roles, as depicted in Table 2.

Table 2. *Specified partner roles (as discussed during the plenary meeting of November 2017).*

Partner	Role
JRD	Coordinator (Project management, Financials, leadership, Technological/Scientific), System Specifications, Eye Tracking Movements, Specifications of Input/Output/Timing (JRD overall, WP-leaders specific), Feedback to partners, Dissemination strategy.
TIU/ GGZ	Social innovation strategy (watch alignment), Field tests, User requirements, WP-Leader, Competence in working with people with dementia, Scientific dissemination (TIU).

Table 2. (*continued).*

Partner	Role
GEU	Problem: does not show up at meetings and telco‘s! Investigate impact of emotion/motivation on cognitive control aspects of people with dementia, competence in depression aspects, Validate assumptions of MBY´s AI engine (theoretical background, experiments, advice).
SVD	Access to patients, Field tests, Knowledge in Amicasa, Use case people at home with/without MAS trainers. E
MBY	Scenarios, Module to teach informal caregivers emotional aspects (SERES ™), (inputs to) Graphics design (together with FAM), Decision necessary on whether to integrate SERES ™ for people with dementia too (as an additional module), AI engine, Contribution to business aspects.
FAM	Develop database, Progress Amicasa game, Marketing, Business Plan, Integrate everything, system specifications? Different skill levels, Statistics on the client, Training content, Helpdesk function? Sell it!
MCR	Move Monitor, Move Test, Expertise in movements, Measurement of movement in serious game session (profiling).

5 Conclusion and outlook

This study systematically analyzed the first seven months of collaboration between the partner organizations of Playtime by several qualitative and quantitative research methods, which were mainly guided by the model of Kaats and Opheij (2014). Their conceptual models describes five different conditions required for effective inter-organizational collaboration, including: (1) shared ambition, (2) mutual gains, (3) relationship dynamics, (4) organization dynamics, and (5) process management.

Results of Hansen's (1999) network measure of tie strength and the semi-structured interviews based on the five conditions of Kaats and Opheij (2014) were found to generate the most valuable insights in the collaboration between the partner organizations of Playtime. Together, these approaches showed that although relationship dynamics between the partners of Playtime were good in basis, they could be improved, mainly by establishing more intense interpersonal ties across the partners in Austria, Belgium, and the Netherlands. In addition, results of the semi-structured interviews showed that also the organization dynamics of Playtime were positively evaluated by project members. The conditions shared ambition, mutual gains, and process dynamics were less positively evaluated due to the early stage of the project. As a final step, the results of this study were fed back and discussed with project members. In doing so, project member's understanding of the current relationships was found to be improved and partner roles were further specified.

This study only systematically analyzes the first seven months of collaboration between the partners of Playtime. Over the course of this three year-project, systematically analysis will continued and described in two subsequent deliverables of the task 'T1.4. Social Innovation Strategy'.

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7 Appendices

Appendix I: Questionnaire I

Appendix II: Questionnaire II

Appendix III: Topic list semi-structured interviews

Appendix I

Questionnaire I

1. What is your name?

2. What organization do you work for?

3. What is your function?

4. What is the current role of your organization in the project Platytime?

5. Which contribution/expertise do you expect to bring to the project Playtime?

6. What output do you expect to deliver during the project Playtime?

Appendix II

Questionnaire II

The following questions concern 5 different themes of collaboration in order to evaluate the Playtime partnership from the perspectives of all involved parties. The five different themes include (Kaats & Opheij, 2014):

1. Shared ambition: shared commitment of the involved partners of Playtime
2. Mutual gains: understanding the various interests of the involved partners of Playtime
3. Relationship dynamics: relational capital among the partners of Playtime
4. Organisation dynamics: governance arrangements among the partners of Playtime
5. Process management: process steering among the partners of Playtime

Please indicate how much you agree with each of the following statements below. When answering the statements, keep in mind the current situation of the Playtime partnership.

1. Not at all
2. Little
3. Mostly
4. Totally
5. Don't know

Shared ambition
a) Is the ambition shared among the partners?
b) Is the ambition attractive for the partners?
c) Is the ambition aligned with the collaboration strategy of each partner?
d) Does the ambition have a personal significance for the key players in the partnership?

Mutual gains
a) Do the partners have sincere interest in one another's interests?
b) Do the partners have a dialogue about one another's interests?
c) Are the partners willing to negotiate with one another?
d) Does the partnership create value for each of the partners?

Relationship dynamics
a) Do the partners have the personal ability to connect?
b) Does the group processes consolidate the partnership?
c) Do the partners trust one another?
d) Is leadership being demonstrated?
e) Is leadership being granted?

Organisation dynamics
a) Is the structure of the partnership aligned with the partners' objective(s)?
b) Is the direction of the partnership aligned with the partners' objective(s)?
c) Can the partnership count on the support of the management/ professionals and

stakeholders?
d) Are the agreements of the partnership clear?
e) Are the agreements being fulfilled by the partners?
f) Does the partnership realize the proposed objective(s)?

Process management
a) Is there a thorough phasing for the planning of the partnership?
b) Is the shared ambition of the partnership being realized?
c) Is the attention of the partners balanced between the content and process of the partnership?
d) Are the roles clearly divided within the partnership?
e) Is the collaboration process clearly directed?

Please answer the following two questions for each partner of Playtime. If you had no contact at all, choose 7 for the next two questions. Otherwise, answer to the best of your recollection. The row that represent your own organization does not have to be answered.

1. How frequently do (did) you interact with each partner of Playtime (on average over the past months)?

1. daily
2. twice a week
3. Once a week
4. twice a month
5. once a month
6. once every two months
7. once every three months or less

2. How close is (was) the working relationship between you and this partner of Playtime?

1. Very close, practically like being in the same work group
4. Somewhat close, like discussing and solving issues together
7. Distant, like an arm's-length delivery of the input

Appendix III

Topic list semi-structured interviews

Introduction

- To evaluate the collaboration processes of Playtime, interviews with all its partners will be conducted. The topics of these interviews are based on the framework of Kaats and Opheij (2014), which describes **5 different themes** of successful collaboration networks: (1) shared ambition, (2) mutual gains, (3) relationship dynamics, (4) organisation dynamics, and (5) process management.
- **Important:** There are no wrong or correct answers to the questions of the interview. Just answer the questions based on your own experiences.

Shared ambition

Shared commitment of the involved partners of Playtime

1. What is (are) your ambition(s) to collaborate in the project Playtime? Or in other words: what outcome do you hope to achieve with the project Playtime (e.g. to develop a product)?
2. What is, according to your opinion, the shared ambition of the project Playtime? Does this correspond to your ambitions?

Mutual gains

Understanding the various interests of the involved partners of Playtime

1. Are you aware of the interest(s) of the other partners of the project Playtime? If so, what do you think there interests are?
2. What is (are) your individual and organizational interest(s) to collaborate in the project Playtime?

Relationship dynamics

Relational capital among the partners of Playtime.

1. How do you experience the relationships among the partners of the project Playtime?
2. How would you describe the trust among the partners of the project Playtime? Why?

Organisation dynamics

Governance arrangements among the partners of Playtime.

1. The management structure of Playtime is based on a project management structure in which JRD has the role of project coordinator. Different WP leaders are responsible for managing the tasks of the Work Packages. Do you agree with this management structure?
2. Have clear agreements been made between the partners of Playtime? Are these mostly fulfilled?

Process management

Process steering among partners of Playtime.

1. Are the roles clearly divided in Playtime?
2. How do you consider your role? And how do you consider the role of other partners?

End

- Are there any important issues regarding the collaboration between the different partners of Playtime that have not been treated yet?
- Next steps: Results of the questionnaire and interviews will be presented in Ghent.