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Value Co-creation in Parkinson Networks*

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Abstract. Marketing sciences suggests that, with the maturation of the (digital) service economy, the notion of economic exchange, core to the economy, has shifted from following a goods-dominant logic to now following a service-dominant logic.

Key to service dominance is the notion of *value in use* rather than *value in exchange*. Value is seen as being created in a process of co creation, involving resource integration.

To design, and evaluate, different design options for value co-creation scenarios, a modelling framework is needed to capture such scenarios. The development of this framework is driven by different case studies. This paper is concerned with early results concerning one such case study in value co-creation, in terms of the ParkinsonNet concept for improved healthcare for Parkinson patients (and their family) as pioneered in the Netherlands.

Keywords: Value co-creation, Service Economy, ParkinsonNet

1 Introduction

Western countries have seen a transition from a goods-oriented economy to a services-oriented economy. Most, if not all, services delivered in the service economy are actually digital services in the sense that they are obtained and / or arranged through a digital transaction over information networks [16, 12]. As such, IT is also generally seen as being the key enabler of the (digital) service economy [11].

Marketing sciences [14, 4, 13] suggests that, with the maturation of the (digital) service economy, the notion of economic exchange, core to the economy, has shifted from following a goods-dominant logic to now following a service-dominant logic. Key to service dominance is the notion of *value in use* rather than *value in exchange*. Value is seen as being created in a process of co creation, involving resource integration, also further blurring the distinction between consumers and producers.

Combined with the digital transformation, the shift towards service dominance, results in the creation of what might be called *digital service ecosystems* [3]. In the (joint)

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development / growth of such digital service ecosystems, *infrastructural* investments (in people, infrastructures, processes, etc) need to be made by the participants in order to prepare themselves for the actual co-creation of value. Such infrastructural investments could e.g. include cultural / knowledge assets, as well as “institutions” in terms of rules, norms, meanings, symbols, practices, and similar aides to collaboration [13], social / contractual assets in terms of defined institutional arrangements [13], contracts with partners in the value web, etc, as well as technological assets such as shared technology platforms, etc.

To ensure that such investments remain controllable, to manage coherence [15], to ascertain if key quality concerns (e.g. sustainability, security, privacy, flexibility) are met, etc., one generally suggests to use an design / architecture oriented approach [6, 9]. Such approaches typically involve modelling frameworks covering different aspects / perspectives of the enterprise / digital service ecosystems, while also maintaining coherence between these aspects / perspectives. Examples include ARIS [10] and ArchiMate [5].

As argued in [8], for value co-creation, it is important to take a holistic perspective of the digital service ecosystems and its context. Concerns, such as sustainability, equity between partners, etc, can only be considered sensibly at the level of the ecosystem as a whole. During last year’s VMBO, we reported on work done, in the context of the ValCoLa project, towards the development of a modelling framework language for value co-creation [8], in particular the strategy we aim to follow in the development of such a framework. One of the key messages was the need to use case studies in the development of such a modelling framework. Contrary to e.g. the development of ArchiMate [5], there is not (yet) a rich experience in the design of value co-creation driven digital service ecosystems.

In line with this, the remainder of this paper is concerned with early results concerning one such case study in value co-creation, in terms of the ParkinsonNet⁴ concept for improved healthcare for Parkinson patients (and their family) as pioneered in the Netherlands.

2 Background

Parkinson’s disease is a common and disabling neurodegenerative disorder [1]. To improve the quality of care, while at the same time reduced costs, for healthcare for patients (and their families) suffering with Parkinsons disease, Dutch researchers in the Parkinson’s domain have pioneered the concept of Parkinson networks. The Dutch ParkinsonNet has indeed been able to achieve these goals [1], triggering other countries to try and copy the same model, such as Luxembourg⁵

The concept of a ParkinsonNetwork has introduced a new way of care, where “*specialised professionals and engaged patients work together to try to achieve optimal outcomes*” [1]. Key in this is that it introduces a “*new “collaborative culture of care” where specialised professionals and engaged patients work together to try to achieve*

⁴<https://www.parkinsonnet.nl>

⁵<https://www.parkinsonnet.lu>

optimal outcomes”, which entails patient participation, empowerment, and self management, combined with the use of information technology to drive and support, the network. Figure 1 depicts the medical disciplines, as identified in [1], that are (potentially) involved in healthcare for Parkinson’s disease.

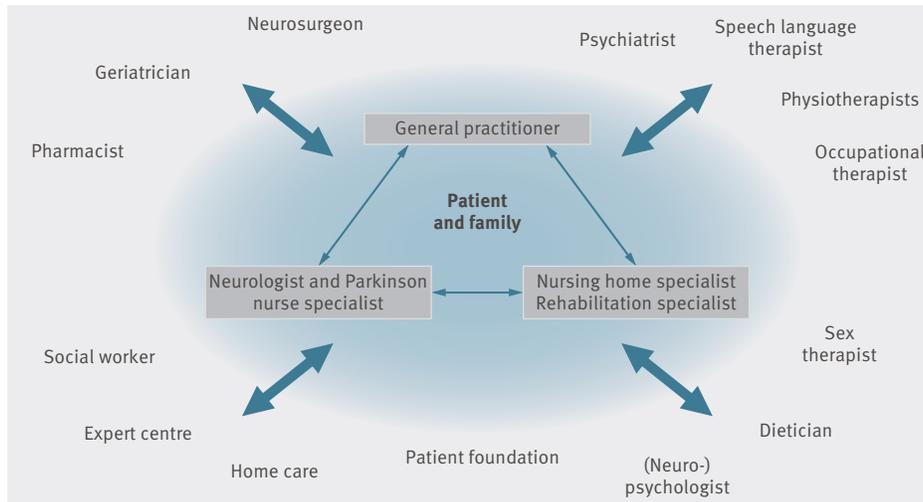


Fig. 1. Disciplines involved in the care of patients with Parkinsons disease, taken from [1]

As Figure 1 also illustrates, a Parkinson network puts the patient (and their family) central, while different relevant health disciplines, administrative actors, etc, contribute to the needed health care. Health care professionals are then expected on the cross section between their discipline and Parkinson disease.

The combination of a network, the focus on the co-creation of (health) value between patients, family, and health professionals, and the role of information technology to bring the parties together, makes the creation of Parkinson networks an interesting case for the ValCoLa project.

The initiators of the Dutch ParkinsonNet already had the idea to generalise the concept. Both in terms of re-applying the model in other countries, but also to generalise it into a general healthcare concept that could be beneficial to patients with other forms of chronic disease, such as Alzheimer’s.

3 Approach and initial results

In developing the Parkinson network(s) case study we also observe(d) the need for value co-creation between the research communities involved. Where the ValCoLa project needed a case study, the ParkinsonNetworks have a need to better understand the workings of such networks, as well as make their development strategies more explicit. The

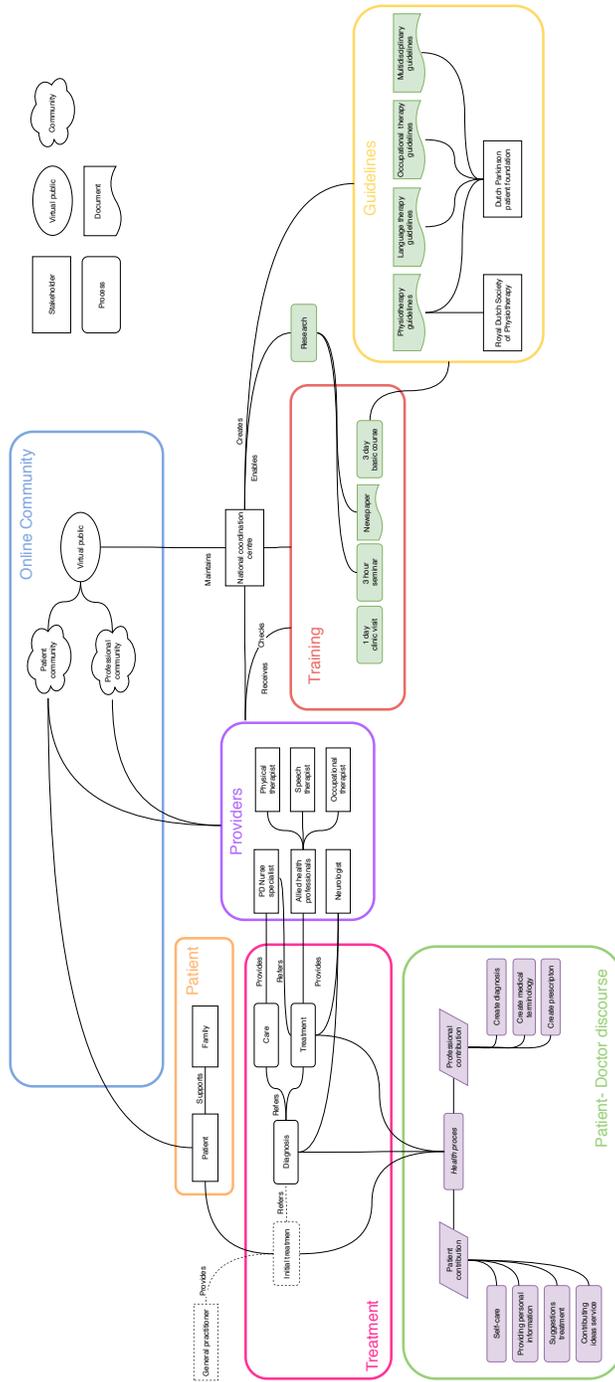


Fig. 2. Landscape of ParkinsonNet

initiators of ParkinsonNetworks have a need to use such insights and / or capitalise on their own experiences.

Condering the broadness of the stakeholders involved in the “running” and “growing”, of a ParkinsonNet, it is key to take a value co-creation perspective, thus ensuring that the goals of all relevant stakeholders are met sustainably. This resulted in the strategy to:

1. At a generic level identify:
 - generic stakeholder types for ParkinsonNetworks,
 - generic potential value flows between the stakeholders,
 - any generic “rules of the game”.
2. At the more specific level (of a specific network) identify / specialise:
 - specific stakeholder types for ParkinsonNetworks,
 - specific potential value flows between the stakeholders,
 - specific “rules of the game”?
3. Articulate growth strategies:
 - How to grow a sustainable ParkinsonNetwork?
 - Are there different stages?
 - Different roles of stakeholders during different stages?
 - Is it possible to make changes to the rules of the game?

An example, of a “rule of the game”, and how this may differ between countries, is the fact that in the Netherlands, health insurance companies provide a better coverage of the costs, when patients use a health professional from the ParkinsonsNetwork. Based on experiences within the network, there is evidence that the overall costs of Parkinson disease related health care is lower when patients receive care via the network [1]. This enables to insurance companies to let patients essential “share” in these financial benefits, making it more attractive for patients to seek health care from the network. In Luxembourg, however, such differentiation of refund of medical costs is not allowed due to the “free choice” principle, which allows patients to freely choose which (relevant) health care professional should treat them.

From the perspective of the ValCoLa research project, answering the above questions also provide(s/d) insights into the modelling concepts needed in a modelling framework for value co-creation.

For the identification of stakeholders, Figure 1, as provided in [1], served as one of the inputs. However, additional stakeholders are involved as well, for example, insurance companies, government agencies, funding agencies, etc. Figure 2 provides an overview of the resulting landscape of potential stakeholders. The role (or even presence) of these stakeholders may differ from country to country.

In identifying the typical stakeholders and their goals, we soon realised that there where goals (and even stakeholders) that pertain to the *running* activities of the network (e.g. patients needing care, health care professionals looking job satisfaction by being more effective in providing healthcare, etc) and those that pertain to *growing* the network (e.g. insurance companies, governments, health care organisations, etc).

The overview of the relevant stakeholders, at a generic level, is shown in Figure 3. For each of the arrows shown in Figure 3, a further analysis was made (at the generic

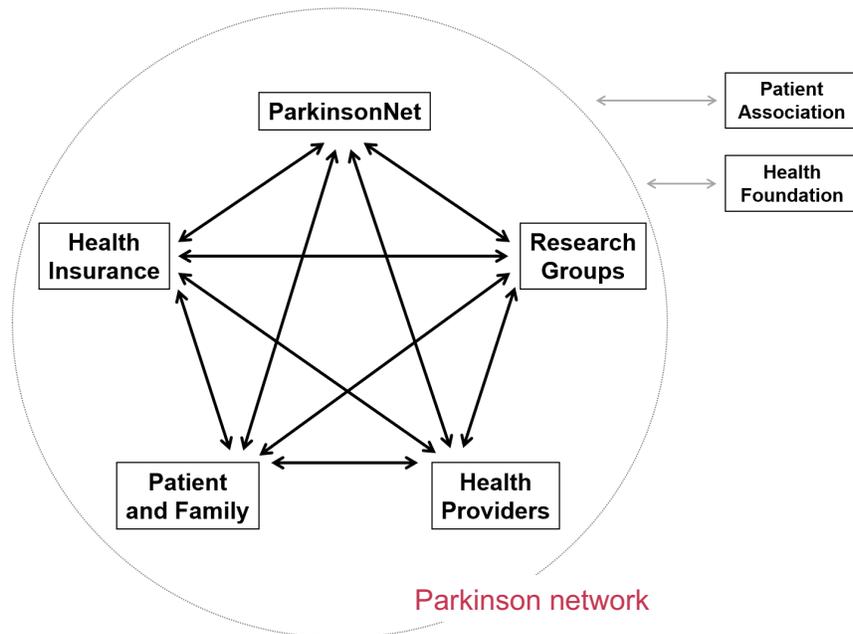


Fig. 3. Main stakeholders involved in a Parkinson network

level) regarding the potential value flows between the involved actors. An overview of this analysis is provided in Figure 4.

The inclusion of re-usable, value co-creation driven, strategies to *grow* Parkinson-Networks results in a need to have a framework to “codify” such strategies. To this end, we will use the underlying structures as used in the ISPL (Information Services Procurement Library) [2, 7] as a starting point. In particular, in terms of its *situational analysis*, *risk analysis* (in terms of the latter), and *heuristics* to select / define *risk mitigation* strategies and *project delivery strategies*.

4 Conclusion and next steps

In this paper, we discussed the early results of an ongoing value co-creation case study, in terms of the ParkinsonNet concept for improved healthcare for Parkinson patients (and their family) as pioneered in the Netherlands.

We are now in the process of (1) better documenting the potential stakeholders and their potential value exchanges (based on a literature study on papers dealing with the development of Parkinson networks), (2) more broadly validating these with the domain experts, (3) making the “reasoning structure” used in ISPL [2, 7] suitable to capture different growth strategies for ParkinsonNetworks, in particular by adding the role of value co-creation between stakeholders, and (4) capturing (and comparing) suc-

successful / failed strategies in growing ParkinsonNetworks explicit in terms of the former “reasoning structure”

Value flows Stakeholders PNet					
1	ParkinsonNet	-->	Health Providers	4	Health Insurance --> Health Providers
	Job satisfaction	+		Sponsoring	+
	PD Patients	+			
	Expertise	+			<--
	Cooperation Health Professionals	+			- (Unnecessary) service utilisation in healthcare
	Career advancement possibilities	+			+ Efficiency healthcare
	Money	+			+ Aid in patients
		<--			
		+	Money		
		+	Work efficiency		
2	ParkinsonNet	-->	Patient and Family	5	Patient and Family --> Health Insurance
	Costs	-		Insurance claims	-
	Transparency	+		Money	-
	Community	+			<--
	Travel time	+			- Money
	Intimacy	+			
		<--			
		+	Community participation		
		+	Feedback		
3	ParkinsonNet	-->	Health Insurance	6	Health Providers --> Patient and Family
	Costs	-		Quality of care	+
	Reimbursement negotiations	-		Self-management	+
	Efficiency (less waste)	+		Referrals	+
	Promotion	+			<--
		<--			+ Self-management
		+	Money		- Money (when not insured)
		+	Patients		

Fig. 4. Potential flow of value between the main stakeholders involved in a Parkinson network

References

1. B. R. Bloem and M. Munneke. Revolutionising management of chronic disease: the parkinsonnet approach. *BMJ*, 348, 2014.
2. M. Franckson and T. F. Verhoef, editors. *Managing Risks and Planning Deliveries*. Information Services Procurement Library. Ten Hagen & Stam, Den Haag, the Netherlands, 1999.
3. B. van Gils and H. A. Proper. Enterprise modelling in the age of digital transformation. In R. A. Buchmann, D. Karagiannis, and M. Kirikova, editors, *The Practice of Enterprise Modeling - 11th IFIP WG 8.1. Working Conference, PoEM 2018, Vienna, Austria, October 31 - November 2, 2018, Proceedings*, volume 335 of *LNBIP*, pages 257–273. Springer, Heidelberg, Germany, 2018.

4. C. Grönroos and A. Ravald. Service as Business Logic: Implications for Value Creation and Marketing. *Journal of Service Management*, 22(1):5–22, 2011.
5. M. M. Lankhorst, S. J. B. A. Hoppenbrouwers, H. Jonkers, H. A. Proper, L. van der Torre, F. Arbab, F. S. de Boer, M. M. Bonsangue, M.-E. Iacob, A. W. Stam, L. Groenewegen, R. van Buuren, R. J. Slagter, J. Campschoer, M. W. A. Steen, S. F. Bekius, H. Bosma, M. J. Cuvelier, H. W. L. ter Doest, P. A. T. van Eck, P. Fennema, J. Jacob, W. P. M. Janssen, Jonkers, H., D. Krukkert, D. van Leeuwen, P. G. M. Penders, G.E. Veldhuijzen van Zanten, and R. J. Wieringa. *Enterprise Architecture at Work - Modelling, Communication and Analysis*. Springer, Heidelberg, Germany, 2005.
6. M. Op 't Land, H. A. Proper, M. Waage, J. Cloo, and C. Steghuis. *Enterprise Architecture - Creating Value by Informed Governance*. The Enterprise Engineering Series. Springer, Heidelberg, Germany, 2008.
7. H. A. Proper. *ISP for Large-scale Migrations*. Information Services Procurement Library. Ten Hagen & Stam, Den Haag, the Netherlands, 2001.
8. H. A. Proper, M Bjeković, C. Feltus, and I. S. Razo-Zapata. On the development of a modelling framework for value co-creation. In J. Gordijn and H. A. Proper, editors, *Proceedings of the 12th International Workshop on Value Modeling and Business Ontologies, VMBO 2018, Amsterdam, The Netherlands, February 26th - 27th, 2018*, volume 2239 of *CEUR Workshop Proceedings*, pages 122–132. CEUR-WS.org, 2018.
9. H. A. Proper, R. Winter, S. Aier, and S. de Kinderen, editors. *Architectural Coordination of Enterprise Transformation*. The Enterprise Engineering Series. Springer, Heidelberg, Germany, 2018.
10. A.-W. Scheer. *ARIS – Business Process Modeling*. Springer, Heidelberg, Germany, 2000.
11. J. Spohrer, P. P. Maglio, J. Bailey, and D. Gruhl. Steps Toward a Science of Service Systems. *IEEE Computer*, 40(1):71–77, January 2007.
12. M. W. A. Steen, M. E. Iacob, M.M Lankhorst, H. Jonkers, M. Zoet, W. Engelsman, J. Versendaal, H. A. Proper, L. Debije, and K. Gaaloul. Service Modelling. In M. M. Lankhorst, editor, *Agile Service Development: Combining Adaptive Methods and Flexible Solutions*, The Enterprise Engineering Series, chapter 3, pages 59–94. Springer, Heidelberg, Germany, 2012.
13. S. L. Vargo and R. F. Lusch. Institutions and axioms: an extension and update of service-dominant logic. *Journal of the Academy of Marketing Science*, 44(1), January 2016.
14. S. L. Vargo, P. P. Maglio, and M. A. Akaka. On value and value co-creation: A service systems and service logic perspective. *European Management Journal*, 26(3):145–152, 2008.
15. R. Wagter, H. A. Proper, and D. Witte. A Theory for Enterprise Coherence Governance. In P. Saha, editor, *A Systematic Perspective to Managing Complexity with EA*. IGI Publishing, Hershey, Pennsylvania, 2013.
16. K. Williams, S. Chatterjee, and M. Rossi. Design of emerging digital services: A taxonomy. *European Journal of Information Systems*, 17(10), 2008.