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The fruits of six years of Chain Landscape Research at Utrecht University

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# Chain-computerisation as a research methodology

## The fruits of six years of Chain Landscape Research at Utrecht University

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**Abstract:** With the emeritus status of Professor Jan Grijpink, the moment has come to take stock of the Chain Landscape Research that has been going on under his supervision at Utrecht University since 2005. Central to this research is the implementation of chain analyses on the basis of the theory of Chain-computerisation. Its chain analysis profiles can be used as either descriptive or as assessment tools. Over the past six years, approximately 25 social chains have been examined. Generic, recurring results have bearing on the dominant chain problem, fallacies of the wrong level and identity fraud. Chain Landscape Research is continuing in the form of a debating society and that is desperately needed in view of the contribution that Chain-computerisation can make in providing an answer to large-scale information problems.

**Keywords:** chain-computerisation, chain analysis, dominant chain problem, fallacy of the wrong level, identity fraud, The Netherlands

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## 1 Introduction

In early 2005, as part of the endowed chair of Chain-computerisation in the constitutional state at Utrecht University, the Chain Landscape Research was instigated on the initiative of Professor Jan Grijpink. Now that the professor has been awarded emeritus status and the endowed chair is, therefore, being discontinued, the time has come to take stock of what this research has brought us.

## 2 Research process and results

Central in Chain Landscape Research is the conducting of chain analyses. That is done on the basis of the theory of Chain-computerisation (Grijpink, 1997; 2010). The core of this methodology consists of filling in four profiles, each of which describes one aspect of the chain or the chain co-operation:

- the *mission profile*: what is the dominant chain problem and which critical data do all parties need in order to be able to tackle this dominant chain problem?
- the *coordination profile*: are we dealing with a simple or a complex chain and, based on this, what are the required co-ordination mechanisms?
- the *information profile*: what are the fault lines in the communication between the various chain parties and how can they be bridged?
- the *co-operation profile*: what is the current degree of co-operation among the parties in the chain and, thus, the feasibility of various chain initiatives?

Although these four profiles are, in practice, used for the *assessment* of necessity and feasibility of a specific chain information system, the profiles themselves are more broadly applicable (namely: also for other types of chain initiatives) and can also be used for merely *describing* a specific social chain. Of the four profiles, the co-operation profile can, ultimately, also be used in *strategy development*: if a specific chain initiative does not prove feasible at this time, which future-proof strategy can then be brought to bear in order to increase the chance that this initiative will then be feasible in the future?

Over the past six years, approximately 25 social chains have been examined. Although the chains can all be placed within the social domains of security, health, prosperity and welfare, they include a wide variety of topics, varying from combating youth prostitution to organ transplantation and from diabetes care to labour mediation. For each of the chain analyses, there was data collection, generally by means of desk research and interviews with persons working with parties at key positions in the chain. Subsequently, the research team got to work with these data in order to arrive at a sound chain analysis. This was always necessary because persons working in a chain generally reason from the perspective of their own organisation and, as a rule, have no overview of the complete chain of which they are a part.

Because the outcomes of the Chain Landscape Research are often chain specific, explaining them all would be too much for the intentions of this article (for these chain-specific results, see Grijpink & Plomp, 2009 and the articles that have been published on the subject in the *Journal of Chain-computerisation*). However, a few generic results can be reported, including findings with regard to the importance of the dominant chain problem, the danger of fallacies of the wrong level and the role that identity and identity fraud plays in chains. Here, I will briefly explain these three results.

The dominant chain problem – the problem that greatly hampers all parties in the chain but that none of them can solve by themselves – is different for each chain in Chain Landscape Research. This is consistent with the chain law that the dominant chain problem ‘determines’ the chain (Grijpink, 1997). It thus follows that the required information-infrastructure is, also, different for every chain. This argues against the ‘*one size fits all*’ solutions that we come across all too often, for example within the healthcare domain. Another example originates from the Work and Income-domain (SUWI), which is often thought to consist of one chain, the SUWI-chain. According to Chain Landscape Research, it is actually two: one that is focused on labour mediation and one that is focused on income support (Plomp, 2007).

A fallacy of the wrong level is something that we often come across in Chain Landscape Research. This follows immediately from the fact that, in our research, we do analyses at chain level. Here, substantially different patterns apply than at the level of individual organisations. However, all too often, rules that apply to that level are applied – without thinking – to the interorganisational chain level. One example of this is the idea that, because as a general rule, people act rationally within organisations, this must also be the case within chains. At chain level, however, irrationality seems to be the order of the day. This can lead to problems because managers are used to having the agreements they make (on, for example, planning, budgeting, etc.) complied with. Another common fallacy of the wrong level is the idea that, within a chain information system, all of the data available within the chain should preferably be combined into one large database. In practice, this often proves unfeasible, impractical to keep up-to-date and conducive

to abuse. In short, chain problems demand a fundamentally different way of thinking than normal intra-organisational matters.

In more than two thirds of the chains studied, identity plays an important role. That is often in the form of identity fraud. Identity fraud is difficult to prove because successful identity fraud goes unnoticed (and, if it is nonetheless discovered, all clues point to the victim and not the perpetrator). In the criminal justice chain, it is known that, in 2004, more than 100,000 sets of fingerprints from criminals could be coupled to more than one administrative identity. Moreover, the chain information system of this chain, that provides each of these criminals with a single, unique number, proved to have 1.2 million numbers (Plomp & Grijpink, 2011). That, too, points to identity fraud, seeing as there are not that many criminals in The Netherlands. With the aid of cleverly established biometric checks, an attempt is being made to contain the problem in this chain as much as possible. It is, however, obvious that identity fraud will become an increasingly important problem in the future, also in other social sectors such as healthcare, education and social security. It is, therefore, important that this subject receives the proper attention in the design and implementation of every chain-computerisation solution.

Chain Landscape Research has resulted in contributions to various books and articles. Furthermore, Chain Landscape Research is the 'purveyor' of chain analyses and articles for the *Journal of Chain-computerisation*.

### **3 Retrospective and perspective**

The team of student research assistants who contribute to the Chain Landscape Research has changed regularly and has included – in chronological order – the following members: Gerard van Zuilen, Arnoud Dekker, René Matla, Niels van Luxemburg, Jorgen Horstink, Klara Pigmans, Tjitske Visser, Jesse Dijkman and Peter Seignette. I myself have been involved from the beginning up to the present, just as Jan Grijpink, under whose inspiring leadership the research has been carried out.

Chain Landscape Research will now be continued in the form of a debating society in which various researchers will continue to analyse chain problems in their leisure time. And that is certainly a good thing, because from the 'fads of the day' – for example, the hacking into the public transportation pass that leads to more, instead of less, fare-dodging – it has emerged that the managerial insight with respect to the peculiarities of large-scale information provision is still too limited.

The implementation of such chain analyses has also proven to me the importance and the permanent value of the theoretical framework of Chain-computerisation for reflection on large-scale information problems: by taking into account the irrationality of decision-making processes and by factoring in 'facility abuse,' classic pitfalls can be avoided. Thus, theory and methodology offer a handle in formulating a future-proof information strategy.

The theory of Chain-computerisation and its analytical tools are, on the one hand, extremely intuitive and simple to understand, but have proven, on the other hand, to be difficult to apply and to repeatedly lead to new insights. That is now precisely why I have so enjoyed working on the Chain Landscape Research for the past six years: the inspiring discussions on theory, methods and the content of chain analyses, and the teamwork with which results were achieved that you could never have achieved alone. It is certainly impressive that the theoretical framework of Chain-computerisation has not been successfully falsified and that says a great deal

about the quality of Jan Grijpink's original PhD thesis (Grijpink, 1997). That, in the research process, we have been able to further clarify and strengthen the theory and methodology has been very special for me and I feel greatly honoured that I have been able to be part of this.

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**Biography:** Marijn Plomp (1984) was, even during his undergraduate years (Information Science; *cum laude*), involved as a research assistant with the research on the 'Chain Landscape in The Netherlands.' He has continued to be involved in this research.

At the moment, Marijn is a PhD researcher at the Department of Information and Computing Sciences of Utrecht University. There, he is affiliated with the chair of *Organisation & Information* where he is doing research on the technological and organisational preconditions for (the adoption and implementation of) chain information systems, and is also involved in the teaching of students in the bachelor and master programmes.

He is also employed as researcher/advisor with *Dialogic innovation & interaction*. Alongside of the information science research, his other frequent

activities include evaluation studies, surveys and workshops. In his research activities, Marijn enjoys using innovative methods such as electronic questionnaires and computer-supported conference sessions.

Marijn has various scientific publications to his name, including those in the journals: *Supply Chain Management: An International Journal* and *Journal of Chain-computerisation*. For the latter, he is the managing editor of the scientific section.

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