# Constructing infrastructures, constructing children and professionals 'at risk': ICT implementation in Dutch child welfare

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**Abstract.** This paper studies the implementation of a novel ICT infrastructure in Dutch child welfare, the *Child Index*. This ICT system intends to stimulate early detection of 'children at risk' and to improve multidisciplinary collaboration among professionals involved with that child. This way, it is thought and expected, quality of child welfare improves and 'children at risk' will get better care sooner. We followed the implementation process of the Child Index *in practice*. Our empirical analysis helps us to understand the process and dynamics of implementing infrastructures in practice. Moreover, it shows the need for a reinterpretation of the notion 'implementation' in health care and public health.

## Introduction

In the context of concerns about the health of Dutch children and youth – child abuse, overweight, use of alcohol and drugs, mental problems – new youth policies are developed. Those policies focus on early detection of 'children at risk' and improvement of multidisciplinary collaboration among all different professionals[1] involved with (care for) children. Policy makers have high expectations of ICT information infrastructures to stimulate prevention and collaboration and to improve the quality of care. In fact, ICT infrastructures have

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[1]    All professionals working with youth, including, but not limited to, youth
       physicians, social workers, school's care coordinators, GP's, and youth psychologists.

become 'the magic bullet' in care for youth. In this paper we study the implementation of such an ICT infrastructure in Dutch child welfare; the so called *'Child Index'*. Professionals should use this ICT system[2] to enter a risk signal when they consider a child 'at risk'. Through ethnographic fieldwork, interviews and document analysis we followed the implementation process of this ICT tool *in practice*. A critical sociotechnical analysis enables us to understand the dynamics of implementing novel ICT infrastructures in multidisciplinary practices like child welfare and provides insight into its practical implications and consequences.

## The Construction of Information Infrastructures

Information infrastructures are ubiquitous and shape our daily lives. To understand the way they are build and work, a lot of attention is devoted to studying their design, characteristics and implications. In health care this is no different (Ellingsen, 2004). The increasing introduction of ICT infrastructures in health care raises questions regarding its influences and effects on the quality and effectiveness of care. In the field of information infrastructures, much work has been done by Bowker and Star, who explore the role of classifications and standards in building information infrastructures. One of their famous examples is the International Classification of Diseases (ICD), a large scale information infrastructure to monitor morbidity and mortality on an international scale (Bowker & Star, 1998; 1999). From their analysis, in which they operate an 'infrastructural inversion', we can draw useful insights that help us understand the construction of information infrastructures.

Bowker and Star's (1999) ICD study shows how infrastructures develop through continuing processes of *negotiation* and change. Different interests, needs and users caused many conflicts and negotiations on how to collect and code information to make the ICD useful for (trans)national comparisons. Over time diagnoses arose, disappeared or changed, like the recognition of AIDS as a disease. Varying terminology preferences, different (medical) cultures, and diseases that present themselves differently complicated the process to control ICD use. All negotiations and 'technical, social, political, and economic decisions' are inscribed in the ICD's form and content (Bowker & Star, 1999 p.111). Creating this complex infrastructure of classified medical knowledge and making it work, involves much *infrastructural work*.

Once a working infrastructure is in place – embedded in both practice and technology it can even become invisible – it also does work itself. The ICD

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[2]     The Child Index is referred to in different ways: e.g. computer system, ICT system/tool, (digital) signaling system/tool, registration or reporting system, information system.

enables states to monitor disease and informs health promotion activities, but it also changes peoples' perspectives on health and disease. Classifications define what is called a disease and what not. To classify is not neutral, but has moral consequences. Constructing classifications entails *moral work*.

In health care standardized ICT solutions are considered 'mechanisms for increased control, efficiency and quality' (Ellingsen, 2004). Information infrastructures can *structure* users' behaviour and actions through its inscriptions (Hanseth & Monteiro, 1997), like the ICD provides a public health measure to control disease. Especially when classifications become an important infrastructural component, materialized in formal documents or medical software, using them becomes inevitable. As a consequence users find working solutions and perform adaptation work: create workarounds, develop new categories or change terminologies (Hanseth & Monteiro, 1997). This creativity involves extra work, but also changes the infrastructure itself, which has implications for human actions and behaviour regarding sickness and health. This way, infrastructures' output will be different than expected, intended or hoped for.

## Implementation of the Child Index

The ICD study shows that the construction of infrastructures takes place through *negotiations*, and results in 'working' classifications which *structure* our actions and behavior. Constructing infrastructures not only entails a lot of *infrastructural work*, but in this process also *moral work* takes place.

Whereas records of negotiations leading to the ICD were destroyed, *negotiation* processes regarding the Child Index are still clearly visible which enabled us to follow its construction in practice. Those negotiation processes are especially related to the Child Index' main goals: early detection of 'children at risk' and improving collaboration among professionals. The first goal raises many discussions; it makes professionals wonder: What is a child at risk? Which criteria should be used to decide on that? And when to enter a risk signal? As a result, the classification of risk signals initially inscribed into the ICT tool – low, high, urgent signal – has been abolished. Now professionals only have to decide whether they enter a signal or not. Besides concerns about the notion of risk, professionals also struggle with the way the Child Index prescribes collaboration and negotiate about: Which professionals should be authorized to signal risks? Who should be responsible for coordination? What is our discretionary space?

Making the Child Index work entails a lot of *infrastructural work*: next to *structuring* users' behavior through the material form of an ICT tool, a lot of money has also been invested in making professionals actually use the Index. Besides information meetings, training sessions, and manuals, policy makers

developed rules and regulations on how to use the Child Index. In practice professionals feel uncomfortable to use the Index, so they negotiate their discretionary space and use workarounds to make the Index fit their working practices. However, the ICT system counts all signals and enables policy makers to monitor each user's signaling behavior. This way, the Child Index makes professionals vulnerable to control and contributes to the construction of 'professionals at risk'.

In practice, professionals keep using a variety of creative working solutions because they struggle with the consequences of the Child Index' *classification work*. Although the Child Index is 'simplified' – you enter a signal or not – the *moral consequences* of making this decision are serious and become even harder to deal with for professionals. When you enter a child's name in the system, you construct a 'child at risk'. Professionals find it very difficult to classify a child this way and are afraid they stigmatize or discriminate children instead of helping them. The norms inscribed in the Child Index define whether a child is 'at risk' and whether professionals are 'at risk'; the Child Index performs *moral work*. This has consequences for professionals' work, but more important for children.

# Discussion and Conclusion

Implementation is a hot topic in health care, and sparks many analyses built on assumptions about dissemination of carefully designed technologies. When the implementation of the Child Index is interpreted in terms of building infrastructures, new layers of work – negotiation, classification and moral work – become visible. As we will demonstrate, analysing these interconnected layers of work in terms of infrastructural work, allows for a normative evaluation of the societal demand for and desirability of this ICT technology. Introducing and managing new technologies in health care and other fields would benefit from expanding the discourse on implementation. The construction of information infrastructures entails a lot of hard, infrastructural work, which is worth signaling.

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