



The role of ICT related to clustering and collaboration

The ICT-revolution has impact on all aspects of society (economic, societal, and spatial) and the way systems function now and in the near future. The ICT-revolution is a very complex, multidimensional process with different speeds, results and outcomes in different spaces and domains. It is not a question of delivering laptop computers or mobile phones to every citizen. The results of various technology push ICT-policies are very disappointing until now. Evaluation studies for instance articulate / argument fly wheel theories (see par 1.6 ad 2) as motors of innovation in different domains at different times and places. The impacts of the fly wheel lead to differentiation in involvement of citizens and or the revenue sharing. Terms like 'digital divide' refer to the existence or beginning of societal exclusion. Different access to services is related to developments in service providing.

The role of ICT can be understood by the 3-layer approach (1) and her dynamic variant, the digital fly wheel concept (2).

Ad 1. The three layer approach

Figure 2 shows the three layer approach of ICT. Each level has its own networks: horizontal networks (inside one level) and vertical networks (between levels).

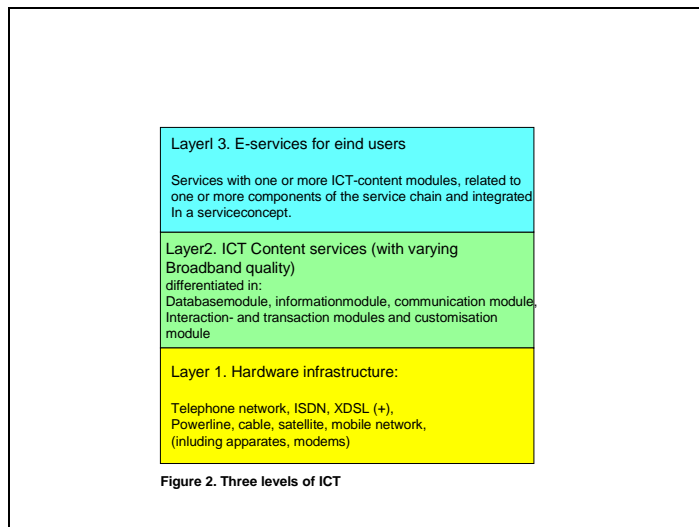


Figure 2 – Three layers of ICT

Layer 1 consists of the hardware infrastructure. This is the external and internal system (for instance internal infrastructure in buildings). There are different hardware infrastructures, such as telephone networks, ISDN, cable networks, satellites, mobile networks. In the Netherlands these networks compete, resulting in positive impact on prices and broadband quality. The situation in other countries might be different. The citizen is confronted with various infrastructure providers and the in house infrastructure of buildings has to cope with linking problems between the different infrastructures.

Layer 2 consists of the software or electronic content of a certain price and quality that can be delivered by the various infrastructures. The content is delivered by (competing) content providers. The potential of level one is used within level 2 in various data-, information, communication-, interaction, transaction and customisation services. For instance: Internet makes it possible to search information and to store data and information. Mobile phones can be used to chat or communicate by spoken words, text and pictures.

Layer 3 consists of the use of the various content possibilities in service concepts. This can vary from information about the service and the service deliverer to full digital services (from informing to downloading the product (music, books) or full transaction of the service (holidays, trips etc).

In work package B2.2. “Economics of scale and network models” we will register the different horizontal networks (per level) and the vertical networks (networks consisting of components of different levels).

In work package B2.1. “Cluster concepts and collaborative strategies” we focus on the use of ICT (components per level) in cluster concepts.

Ad 2. The digital fly wheel concept

The digital fly wheel concept is the dynamic variant of the 3-layer approach. Figure 3 shows how the different layers interact with each other and it clarifies the implementation of ICT in services.

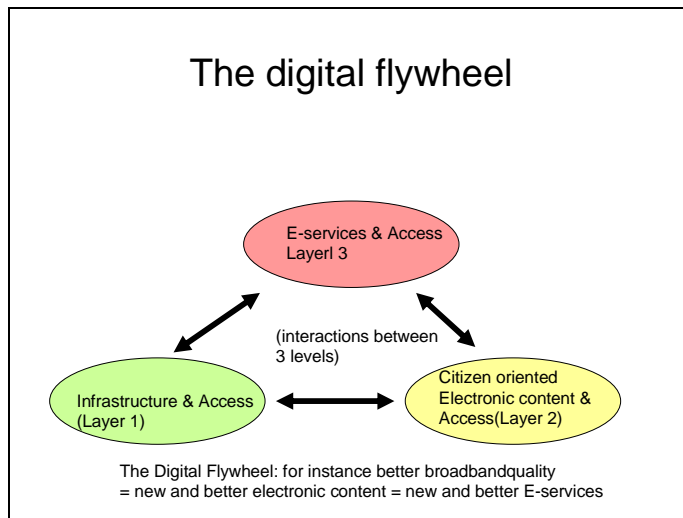


Figure 3 – The digital fly wheel

The digital fly wheel says that developments in one component can lead to reactions in others component(s). The speed of the flywheel depends on the actual impulses in one or more components. For instance: installing fibre to-the Home (FttH) makes it possible to improve the quality of electronic content and that makes it possible to apply new E-services that depend on interactive visualisation, such as medical tele diagnostics. This is an example of a technology driven process. Experiences in the Netherlands learn that a purely technology driven ‘digital flywheel’ requires a lot of energy and money. That’s also the case with an electronic content driven process. Successful stories are the service driven fly wheels (telebanking for instance), based on competition between service deliverers.

The central proposition is the following:

Changes in each of the components are required for successful implementation of ICT, but that is not sufficient. The interaction between the three components must be guided, so all involved participants recognize the added value that can be ‘cashed’ through collaborative processes.

The roles of ICT in cluster concepts can be detailed in:

1. E-components in clustered services (for instance: informing facilities for citizens or the facility to make transactions)
2. the content services being provided (for instance linked software programs of the clustered service deliverers)
3. the (variety) in the use of infrastructure to the access of services (for instance: multi modal access by ISDN and by mobile networks and by fibre glass cable, the quality of devices (mobile phones, TV, PC and so on))

Summary:

The role of ICT in cluster concepts can be differentiated by the three level approach and the digital fly wheel concept. In work package B.2.1. we will register the ICT-elements in cluster concepts, the driving forces (categorized per component) and the critical factors of ICT applications in cluster concepts.