

Exploring ‘*human centred*’ approaches to market research and concept development for creating more value with ICT

Paper presented at COST269 conference Good Bad Irrelevant, Helsinki, Sept 3-5, 2003

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Abstract

Many innovation projects in the information and communication technology (ICT) sector have *human centred* ambitions. They aim to put end-users and customers at the centre, because that is assumed to result in (more) valuable innovations. But many projects fail in doing that, because they use a reduced *view on man* – only as customer or end-user. This paper’s starting hypothesis is that ICT has more potential: if people working in market research and concept development will use more *human centred* approaches, and more comprehensive *views on man*, then their innovations will be more valuable – commercially or socially. Firstly current *human centred* approaches in the development and application of ICT are explored, with focus on market research and concept development. Secondly *human centred* approaches are explored, drawing from humanistic theories and practices, and applying its key concepts *growth* and *dialogue* to create a framework for *human centred* innovation. The explorations result in two specific hypotheses: (a) ICT products or services will create more value if these stimulate *growth*: personal development or emancipation of end-users in private or business contexts, or employees and professionals within institutions; and (b) organisations which develop or apply ICT will create more value if innovation processes include *dialogue*: constructive interaction with the market, and reflection and learning within the organisation.

Introduction

Many innovation projects in the information and communication technology (ICT) sector have ‘*human centred*’ ambitions. They aim to put end-users and customers¹ at the centre, because that is assumed to result in ICT products and services with more value: more successful on the market, or more beneficial for society. But many innovation projects fail in doing that – the author believes that this is because they use a reduced ‘*view on man*’: man is reduced to merely customer or merely end-user. Often the *human centred* focus is overruled by decisions ruled by time-to-market or financial constraints, or a focus on technology. The idea behind this paper is that a *human centred* approach will lead to more valuable ICT innovations, because it is always *people* who adopt and use (or do not adopt and use) ICT, so focusing on people makes sense. When people working in market research and concept development in the ICT sector focus on people’s behaviour, needs and wishes, they are more likely to develop valuable products and services. The author assumes that currently many people in market research and concept development use a reduced *view on man*, for example: ‘a person seeing an advertisement, going to a shop and paying for the service’ (a customer),

¹ End-user and customer are distinguished: the end-user uses the ICT, the customer pays for the ICT – these roles are often the same for consumer products and services, but often separate for business applications.

or ‘a person carrying the product, pushing the buttons and reading the screen’ (an end-user). These caricatures are meant to clarify that such *views on man* do have their merits, but also have their shortcomings. This paper’s starting hypothesis is that ICT has more potential: if people working in market research and concept development will use more *human centred* approaches, and more comprehensive *views on man*, then their innovations will create more value – commercially or socially. For example: one can argue that if one focuses on 10% of a person, then one can only create and capture 10% of the potential value. Focusing on the complete person is likely to reveal more possibilities to create and capture value, and raise fundamental questions about helping enabling, facilitating or stimulating this person in his daily life, with the aid of ICT. A ‘person with a mobile phone’ is so much more than a that, see Fig. 1. This person (also a husband, also a father, also a colleague, also a friend, etc.) may have (latent) needs for ICT products or services which help him to more pleasantly combine his family life and work life.

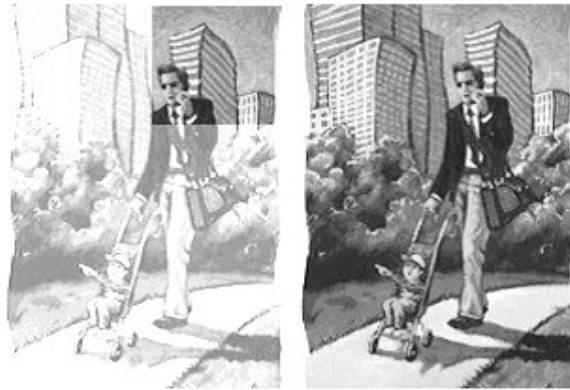


Fig. 1. Focusing on part of the person (left), or focusing on the complete person (right) – focusing on the complete person reveals more possibilities to create and capture value

This paper’s goal is to propose new *human centred* approaches to innovation in the ICT sector, and to formulate recommendations for the innovation process that will result in more valuable innovations – commercially or socially. This paper focuses on market research and concept development processes. In these early phases of the innovation process the view on customers or end-users is crucial, and crucial design decisions are made. The ambition is also to start or fuel a dialogue about whether these new approaches would be a valuable addition.

This paper follows an explorative research methodology:

- Firstly, current *human centred* approaches in the development and application of ICT are explored, with a focus on market research and concept development;
- Secondly, humanistic theories and practices are explored, with a focus on humanistic psychology, and its key concepts are associated to development and application of ICT;
- Thirdly, a framework for *human centred* innovation is proposed and illustrated with two examples – these explorations result in two specific hypotheses.

Current *human centred* approaches in ICT development and application

The exploration of current approaches in development and application of ICT is executed by drawing an overview of the innovation process, and highlighting common *human centred* approaches in general terms. The innovation process is often modelled as consisting of the successive phases: policy formulation, concept development, product development and

implementation (e.g. Buijs & Valkenburg, 1996), with possible iteration within the process. This classification is also used below.

During policy formulations methods like trend watching and scenario analysis are used. These methods are often *human centred*, in the sense that they focus on social or cultural trends, and focus on scenarios of people's everyday life. A possible drawback of these methods is that they study aggregations of people, like market segments, and not individual people. In a sense, this aggregation results in a reduced *view on man*.

During concept development often market research is conducted, which is considered *human centred*, in the sense that it brings the customer or end-user into the innovation process. There are qualitative methods like group discussions, interviews or observations, and quantitative methods like surveys or logging actual behaviour. These methods are meant to supplement each other. Many market research and concept development projects use a contextual approach: the end-user and his or her behaviour, needs and wishes are conceived of as being and happening in the context of daily life. The innovation is then conceived of as being compatible with realistic daily life contexts, and offering relative advantage in realistic daily life contexts (e.g.: Rogers, 1983; Beyer & Holtzblatt, 1998; Haddon ed., 1998; Mante e.a., 1998; Steen, 1997; Steen e.a., 1999; Heres, 2001). Recently the academia and industry started to develop and test methods in which researchers, developers and end-users interact more intensely with each other, and in more realistic daily life contexts (instead of in a laboratory): *ethnographic research* with observations in daily life contexts; *probes* like a camera with which the respondent captures parts of his or her daily life; or *co-operative design* sessions in which developers and end-users explore and sketch innovations together (e.g.: Gaver, Dunne & Pacenti, 1999; Jääskö & Mattelmäki, 2003; Hutchinson e.a., 2003).

Market research methods are applied also during product development or implementation, but from a *human centred* point of view these are generally less effective: crucial decisions were already made during policy formulation and concept development, so there are few options left open, and the effects of *human centred* approaches are likely to be marginal. Technological, financial or operational aspects are often given more priority than input from a *human centred* perspective. For example, functionality that needs to be changed in order to fit end-users' needs, is overruled by constraints from technology, finance or operations.

So there currently are *human centred* approaches in the innovation process, especially in qualitative market research, contextual design methods, *probes* or *co-operative design*. These are *human centred* because they put the end-user at the centre, and involve him or her as an actor in the innovation process. However, from the author's experience with innovation projects in the ICT industry it is clear that in many projects people are still being reduced to end-user or only customer. For example: people working in product development or marketing sometimes speak of 'making the user interface dummy-proof' or 'people must buy this new version' – not a very respectful *view on man*.

A discussion about *human centred* innovation should also cover the organisational aspects of innovation²: how *human centred* is the organisation which develops the ICT, and how *human centred* is the organisation which applies ICT for providing services to their clients? The default approach of organisations which develop ICT is in general: they want sustainable

² Please note the complex nature of *organisation* – for a discussion on complexity and organisation, see (Letiche, 2001) and (Letiche, 2002). Organisational complexity is not addressed in this paper.

business, viable and feasible innovations, and to develop usable and useful products and services. The author speculates that a company which develops ICT, will create more value when culture, strategy and leadership stimulate creative, market driven and entrepreneurial behaviour and learning of people within the organisation (as opposed to bureaucracy and control). The idea is that an organisation will be more effective, if people within it feel more completely and healthy *human* (cf. organisations' healthiness: Kets de Vries ed., 1991).

A similar line of reasoning is followed for organisations or institutes which apply ICT for service processes to their clients. Health care or educational institutes often apply ICT in their core processes in order to improve efficiency or effectiveness, but ICT also endangers the *human scale* which is important in health care and education (cf. 'techno-polis' problems: Kunneman, 1999b). The author speculates that when an organisation applies ICT in such ways that employees feel more completely and healthy *human*, that the ICT then improves efficiency and effectiveness, and stimulates *human scale* at the same time. For example: ICT which helps a nurse to work effectively, so she enjoys work more, and can be friendly to her clients.

The exploration of current approaches further refines the question about *human centred* innovation in the ICT sector, and yields three questions, see Fig. 2.

- What are *human centred* approaches for customers or end-users who use ICT in the context of daily life (work or private use)? (see Fig. 2 left)
- What are *human centred* approaches for people working in market research and product development' within an organisation which develops ICT? (see Fig. 2 right)
- What are *human centred* approaches for employees or professionals within an organisation that applies ICT for providing services to their clients? (see Fig. 2 middle)

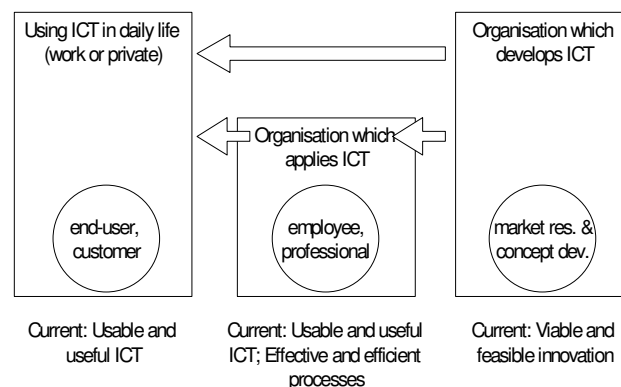


Fig. 2. Questions about human centred innovation – For end-users or customers who use ICT in their daily lives (left); for people working in an organisation which develops ICT (right), and for employees or professionals in an organisation which applies ICT (middle)

Human centred approaches from humanistic theories and practices

This section explores alternative *human centred* approaches, as a way to answer the three questions above. Alternative approaches are sought for and found in humanistic theories and practices, and especially in humanistic psychology. The author is *not* aware of any other confrontations between humanism and innovation, and thought it worthwhile to see whether humanism may help to make innovation in the ICT industry more valuable.

As was expected (from the name alone) humanism provides concepts that are useful for *human centred* innovation: humanism is a collection of theories and practices that put people at the centre. Humanists believe in human possibilities and value human dignity. Socrates is considered as a humanist *avant la lettre*, because of his practice of dialogue and his search for truth and virtuousness. He asked unusual questions and engaged in dialogue, as a way of deepening insight by means of reflection and reasoning. Zeno, Cicero and Marcus Aurelius may similarly be considered humanistic, in their views on human dignity and reasonableness. The term *humanist* was coined in Italy in the 14th century, meaning someone who studies Latin and Greek. Humanism spread gradually through Europe, influencing philosophers, scientists and writers like Erasmus, Spinoza, Descartes, Rousseau, Marx and Nietzsche. They developed different ideas for different domains, however their ideas share some common threads: humans are put at the centre, as actors with free will and with equal rights, and often their ideas go against mainstream thought and status quo. Humanists, or *freethinkers*, started to organise in Europe in the 19th century, as an alternative to religious practices. Today, humanists are active in social work, foreign aid, counsel and advice, human rights, education, etc, and co-operate with others from religious and non-religious backgrounds.

Through this diverse palette of theories and practices, there are several key concepts of humanism, these are: freedom, equality and solidarity; '*growth*'; and '*dialogue*' (compilation of: Kunneman, 1999a; Praag, 1996). These concepts are explained below and are associated to innovation in the ICT industry – drawing creatively from these references.

Humanism emphasize freedom and equality. All humans are considered to have free will, and to be equally valuable. Obviously friction may happen between these, and humanists consider solidarity as the way to solve this: solidarity as rooted in mutual involvement and alliance between all people. This friction may also be formulated in economic-political terms: drastic market mechanisms lead to ultimate freedom (and no equality), and drastic bureaucracy leads to ultimate equality (and no freedom), and solidarity is needed to inspire practices of sharing and caring, and improve the quality of life (Klamer, 1999).

From an ICT perspective these concepts are inspiring. All ICT products and services may be considered as *tools* (as means, not as an end in itself), and may enable, facilitate or stimulate freedom, equality or solidarity – in different proportions and balance. ICT's are tools for freedom, when one accesses information on internet, or when one makes a phone call on the beach. ICT's are tools for equality, when all households have a phone, or when all citizens have the right to access government information on internet. And ICT's are tools for solidarity, when chronically ill people meet in a virtual community on internet, or when teenagers send SMS's to each other. It is easy to also imagine negative sides of these examples, examples of the *digital divide*: a household without money for the phone, someone without the expertise to use internet, or a chronically ill person without the money for a PC. This emphasises the need for a balance between freedom, equality and solidarity.

Another key concept is *growth*. Humanists believe in human's possibility to grow. People are considered to be part of a continuous genesis, and have a responsibility to aim for personal development, societal progress and emancipation. This concept is central in humanistic psychology with important representatives Abraham Maslov, Carl Rogers, and Erich Fromm. This movement developed in the 20th century as an alternative to behaviourism and psycho-analysis. Humanistic psychologists state that behaviourism reduces people to their perceptible and measurable behaviour, and that psycho-analysis reduces people to being at the mercy of

their unconsciousness and instincts. Humanistic psychologists focus on what makes humans unique – hope, love, inspiration, creativity, etc. – and have a hopeful and respectful *view on man*. Abraham Maslov developed a positive motivation theory: a healthy individual first fulfils physiological and safety needs, then needs for love and esteem, and may then naturally grow towards self-actualisation: a creative, spontaneous, inspired, altruistic, active and intense way of living (Maslov, 1970). Carl Rogers had great trust in human potential, and developed an effective and much followed *client centred therapy* in which the therapist unconditionally accepts the client, and facilitates him or her to find solutions for his or her needs (Rogers, 1961). Erich Fromm is critical about technological society, its paradigm ‘all what is possible technologically should be implemented’, and its pursuit of maximum efficiency and maximal production. He sees an unhealthy preference of people for mechanical and controllable life, over unpredictable and creative life, and recommends *humane* consumption: based on *humane* needs instead of *synthetic* needs (Fromm, 1968).

The concept of *growth* is relevant for the customer or end-user who uses ICT in daily life, and for the employee or professional within an organisation which applies ICT. ICT, as a tool, is considered *human centred* when it enables, facilitates or stimulates *growth*: personal development, creative, inspired, altruistic, active and intense ways of living, and societal progress and emancipation. Some examples³: someone learning a foreign language with the help of ICT, or a medical specialist giving attention to his patients and having time with his family with the help of ICT. The author thinks that every person decides for himself or herself whether to aspire after *growth* or not, and decides on the nature of *growth* in his or her life. Different possible natures of *growth* are sometimes used for market segmentation, e.g. *primary motivations* to use ICT for: career, family life, or entertainment (Forrester).

Some consider *dialogue* the key concept in humanism (Praag, 1996): stressing the need for dialogue between people, for constructive interaction and reflection and learning in this dialogic process. Humanists believe that open dialogue and constructive interaction between individuals, as free people with equal rights, is key to *the good life* and to solving problems. The concept of *dialogue* is central in Socrates’ dialogue – his methods are currently applied in strategic consulting, coaching and counselling in organisations (e.g. Kessels, 2003). And *dialogue* is central in Roger’s *client centred* therapies, in which the therapists encourages the client to talk – an useful approach for market research and concept development settings.

For the study of *human centred* approaches in ICT innovation the concept of *dialogue* is inspiring. It points at the importance of dialogue between the organisation that develops ICT, and the market and society: the importance of product developers and marketers actually meeting with end-users and customers in open dialogue, without preconceptions. An interesting question is: How can an organisation engage in *dialogue* with a mass market? A possible answer is that a company or institute serving a mass market may develop and apply ICT products and services in such a way that customers and end-users feel empowered to find out for themselves how to use these ICT products and services in their daily life and work.

The concept of *dialogue* also points at the importance of dialogue within the organisation that develops the ICT: the importance of dialogue between people working in product development, marketing, operations and finance, and dialogue of management with the rest of the organisation. There is a body of literature about organisational development that deals

³ *Growth* of someone working within an organisation that develops ICT, e.g. someone working in market research or concept development who develops skills and works creatively, is not addressed in this paper.

with issues that relate to *dialogue*: reflection and learning, strategy, culture and leadership (organisation level), and analysis, creativity and motivation (employee level). Organisational development and *dialogue* are important factors for sustainable business, viable and feasible innovation business, and effective and efficient processes. However, this paper does *not* address these interesting issues any further.

It is interesting to note that issues in the medical or biological industry are often subject of ethical debate, whereas ethical debates about issues in the ICT industry are rare. Debate about medical or biological issues is mostly about what is *not* ethical. Is this because ICT facilitates positive developments, like connecting people, or providing access? But ICT also facilitates negative developments, like individualistic behaviour, or fragmented activities (cf. Dijk, 1991). The author thinks that ICT deserves more attention from ethical debates, because of the large economical and social impact of ICT, e.g. on growth of knowledge intensive or service industries, decreasing employment caused by of automation, or people that feel isolated or fragmented caused by individualistic and hectic lifestyles stimulated by ICT. Ethical questions are not addressed in this paper, however it may be interesting to explore how ICT may contribute to *the good life* – creative, inspired, altruistic, active and intense life.

Framework for *human centred* innovation and illustrations

In this section a framework for *human centred* innovation is proposed, that brings together the explorations of current *human centred* approaches in ICT innovation, and *human centred* approaches from humanistic theories and practices. We are looking for more comprehensive *views on man*, as a supplement to current reduced *views on man*, because these are assumed to make innovations more valuable – commercially or socially. We are looking for a framework that will help organisations which develop ICT and organisations that apply ICT, to create and capture more value. The framework is drawn in Fig. 3, and explained below.

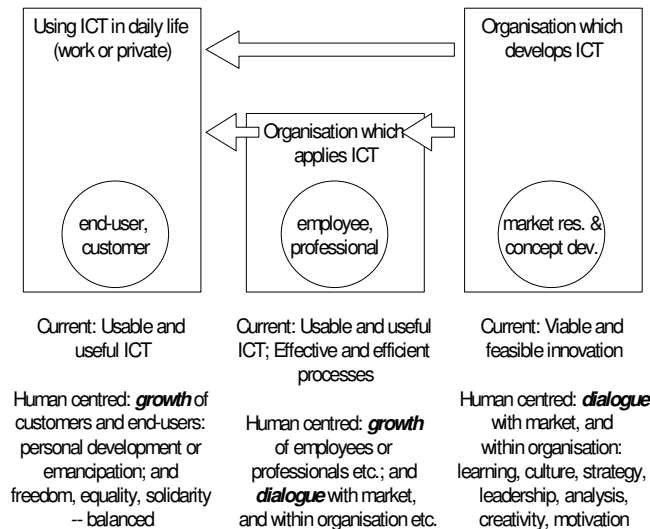


Fig. 3. Current criteria and human centred criteria growth and dialogue – For end-users or customers who use ICT (left); for people working in an organisation which develops ICT (right), and for employees or professionals in an organisation which applies ICT (middle)

- Customers or end-users who use ICT in their daily lives want useful and usable products or services (see Fig. 3 left). In addition to that, *human centred* approaches may create more value, for which the following criteria are proposed: In what ways does ICT enable, facilitate or stimulate *growth* (personal development or emancipation)? How are freedom, equality or solidarity stimulated, and how are these balanced?
- Organisations which develop ICT want viable and feasible innovation and business (see Fig. 3 right). In addition to that, *human centred* approaches may create more value, for which the following criteria are proposed: In what ways is there *dialogue* with market and society, and *dialogue* within the organisation? How do culture, strategy and leadership, analysis, creativity and motivation stimulate market driven innovation and learning?
- Organisations which apply ICT in services to their clients want useful and usable products or services, and effective and efficient processes (see Fig. 3 middle). In addition to that, *human centred* approaches may create more value, for which the following criteria are proposed: In what ways does ICT enable, facilitate or stimulate *growth* of employees or professionals in the organisation? And in what ways is there *dialogue* with market and society, and *dialogue* within the organisation?

At first glance this framework may look idealistic. However, the author believes that these *human centred* approaches help to focus on creating and capturing value on the long term – in line with *responsible* business⁴.

This framework is illustrated with two examples from Freeband B4U research projects⁵ (Freeband, 2003), in which the author participates. One of the goals of the Freeband B4U project is to develop prototypes for two innovative, context-aware, mobile services: a service for improved communication between knowledge workers, and a service for improved information exchange in health care.

The service for communication between knowledge workers enables one person Anne who wants to communicate with another person Ben, to look into Ben's office calendar via her PDA, and see whether, how or when Ben is available. This service makes communication more effective and efficient, for both Anne and Ben, and is a useful and usable service.

From a *human centred* perspective, this service may also stimulate *growth* of Anne and Ben – looking at both sides of the communication tool. Suppose Anne is a consultant who enjoys her work when she is optimally available for her clients. Then the service may include functions which log which client tries to contact her, and when, and whether they succeed in communicating – this helps Anne to optimise her availability, and stimulates her *growth*. Suppose Ben is a salesman who tries to find a balance between work and family life. Then the service may include functions to either separate work and family hours, or blend work and family hours, or a *black list* which stops colleagues, or a *white list* which allows family members through – this helps Ben to balance work and family life, and stimulates his *growth*.

⁴ The author is aware of several other papers at COST269 2003 Conference with similar *human centred* ideas: (Bouwman e.a., 2003), (Limonard & Koning, 2003) and (Steen e.a., 2003).

⁵ The Freeband programme aims at the generation of public knowledge in advanced telecommunication technology and applications. It specifically aims at establishing, maintaining and reinforcing the Dutch knowledge position at the international forefront of scientific and technological developments. The Dutch Ministry of Economic Affairs is co-funding this programme. The intention is to prepare the grounds for the big leap forward towards 4G, in which seamless integration of fixed, wireless and mobile networks will be the standard and in which an attractive environment for user centred applications will be the norm.

In this project, the innovation process consists mainly of technical development and user testing. From a *human centred* perspective, this process may include *dialogue* with the market, and *dialogue* within the organisation which develops the innovation. Please note that the service can only function when the client's office uses calendar software, and when management has agreed to couple these systems with the service. The project team members may talk with management, system operators, end-users of a potential client's office, and people who try to contact people in the office, and discuss costs, benefits, security, processes, image towards their clients – and even better: conduct a commercial pilot within this office. With regard to *dialogue* within the organisation: the project team members (the organisation which develops the innovation) work in three different organisations, and have different backgrounds – therefore *dialogue* is difficult, but also interesting, and has large potential for constructive interaction, reflection and learning.

The service for improved information exchange in health care enables a chronically ill person at home to organise and manage health care providing organisations and people. The service links to planning software of health care providing organisations, and is useful and usable. The service empowers the receiver of health care, and makes health care providing processes more efficient and effective.

From a *human centred* perspective this service may stimulate *growth* of Pete, who receives care, and *growth* of Vivian, who provides care. Suppose Pete feels relatively well on some days, and relatively bad on other days. Then the service may include functions with which he can call-off care for one day, or call for more care on another day (current health care processes are often rigid and complex) – this helps Pete to live in accordance with his changing abilities, and stimulates his *growth*. Suppose Vivian is working part-time as a nurse and part-time as an illustrator. Then the service may include functions with which she pro-actively and real-time change her work planning, and react to changing demand. She can then more happily combine both jobs, resulting in satisfied clients – this stimulates her *growth*.

The process of ICT innovation is often complex in the health care sector, because there are many factors which hinder cooperation and return on investment. From a *human centred* perspective the innovation process may include *dialogue* between the health care organisation and the market, and *dialogue* within the organisation. An organisation which aspires to use such ICT may talk with government, health care insurers and patient organisations, and explore the pros and cons of this innovation. And the organisation may facilitate dialogue between employees and professionals within the organisation about what this innovation can do for effectiveness and efficiency of processes, and how it may influence their daily work.

Conclusions

These explorations result in two specific hypotheses:

- ICT products or services will create more value if these enable, facilitate or stimulate *growth*: personal development or emancipation of end-users in private or business contexts, or employees and professionals within institutions.
- Organisations which develop ICT or apply ICT in their services to clients, will create more value if innovation processes include *dialogue*: constructive interaction with the market, and reflection and learning within the organisation.

The author recommends further exploration, application, testing and evaluation of the proposed framework and hypotheses. In addition to that, further research is recommended for

issues like: organisational complexity (issues like: emergence and coherence), ethical questions relating to ICT (how ICT can enable, facilitate or stimulate *the good life*), *growth* of people working within an organisation that develop ICT, and organisational development (issues like: learning, strategy, culture and leadership, analysis, creativity and motivation).

Acknowledgements

The author would like to thank Edward Faber (Telematica Instituut) and Aloys Maas (TNO Telecom) for the opportunity to write this paper, and Jeroen Heres (TNO Telecom) for constructive dialogue while writing it.

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