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Putting Communities First – championing sustainable responses in Africa

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Abstract

African communities are constantly in a state of flux as the continent grapples with challenges associated with rapidly changing socio-technical systems. The concomitant increase of tension in such communities demands urgent context-responsive interventions. Localised solutions and innovations are indispensable tools for facilitating local appropriation. By co-opting and engaging end-users through a consensual participatory process, the likelihood of successful buy-in is greatly enhanced. Consequently, the key driving force for innovation in a variety of sectors is the proactive engagement of all members of a given community. The challenges however of working with communities in developing milieu often reveal exciting possibilities and promising results provided that the process is open, honest and inclusive from the outset. It is imperative therefore to identify means by which to systematically involve the various actors (including community members, champions and other promoters and interested parties) in driving innovation and sustainable development.

This paper examines community-driven innovation and proposes a sustainable model for innovation and development of localised solutions based on local experiences. Subsequently, the Reconstructed Project is interrogated as a promising case wherein a community-driven approach led by local champions has been effective in developing solutions to support a Community in Tension (CiT) in the Western Cape Province of South Africa. The peer-to-peer learning activities, roles of the champions, community participation, sustainability and its grass-roots/bottom-up approach are pivotal factors in the success of this project. The lessons learnt from this unique project inspire hope for leapfrogging other communities in Africa towards a more sustainable future.

Key Words:

Co-development; Communities; Community Champions; Community in Tension; Innovation; Participatory Design; Sustainability.

Introduction

This paper presents a multidisciplinary, inclusive approach to projects within *Communities in Tension* (CiT). Through participatory methods and the inclusion of various stakeholders, communities within the Cape Flats are solving social issues pertinent to the area. The bottom-up approach discussed within

this paper makes reference to ‘the collective designer’ and presents specific Advice Support Networks developed by the *Reconstructed Living Lab* in partnership with the local community. These include *Drug Advice Support (DAS)*, *Debtbreaker* and the *National AIDS Helpline*.

Community in Tension

Communities can be described as “coherent areas of social existence identified by a sense of locality and community sentiment” according to Day (1999:10). Parker and Pereira (2008) advance this notion by describing a community as “a social existence that shares a common thread”. Communities as articulated in this paper refer to both physical and virtual communities. Access to various factors within a community can influence its stability. These factors could include technology (Gigler, 2004), social empowerment, education (Peterson *et al.*, 1993), and economics (Aruchamalam, 2002).

The increase of gang and drug activity on the Cape Flats in the Western Cape is causing tension within communities (Plüddermann *et al.*, 2007). These activities have a negative impact on citizens in these communities and contribute to a sense of helplessness, especially amongst the youth. The community sentiment described by Day (1999), and adopted in this paper, is that a community is a social existence that shares a common thread, ownership or participation. A *Community in Tension (CiT)* can be described as *a community where the wellbeing of its citizens is threatened*.

Factors for the grounds of tension could include:

- Lack of economic development (e.g. unemployment, inflation)
- Social inequality (e.g. lack of social services, social issues such as drug abuse)
- Lack of education
- Lack of appropriateness and use of technology (e.g. technology not being utilised fully within communities for its intended use)

The tension caused by these factors can be described as a common thread within a community (See Figure 1). A CiT therefore emerges and tension would be the underlying aspect holding a community together or common thread that is shared by the social existence. For example a community plagued with drug and gang activities would appear to have tension amongst its citizens. This could be attributed to these activities having a negative impact on the community and leaving a sense of helplessness in combating drug and gang activities amongst youth. In this instance the social inequality causes tension and leads to the wellbeing of citizens being at risk. This tension would draw a community together and provide an opportunity for citizens to collaboratively participate in activities to bring about change.

A citizen in a Community in Tension (CiT) can be:

- *neutral* (is neither affected by the problems that cause the tension or contributing to the problems)
- *antagonist* – the citizen causing the tension, such as a gangster or drug-addict.
- *victim* – the citizen that is caused harm as a result of the problems contributing to the tension, for example people injured or threatened by the antagonist.
- *citizen at risk* – the citizen that suffers as a result of the tension, such as a family member of the victim or the antagonist.
- *reconstructed/reformed citizen* – the citizen who used to be an antagonist; someone who has caused harm to others but has reformed.

- *facilitator* – the citizen or “thing” (ICT can also be regarded as a facilitator) that acts as a change agent to bring about change.
- *community leader* – a citizen formally or informally accepted as a leader who acts as a spokesperson for a group of citizens within the community, such as a pastor.
- *Care giver / volunteer / community developer* – a citizen (within or outside the community) who offers time and expertise to assist with the care, education, dissemination of information, etc. whose involvement contributes towards addressing the problems contributing to the tension.

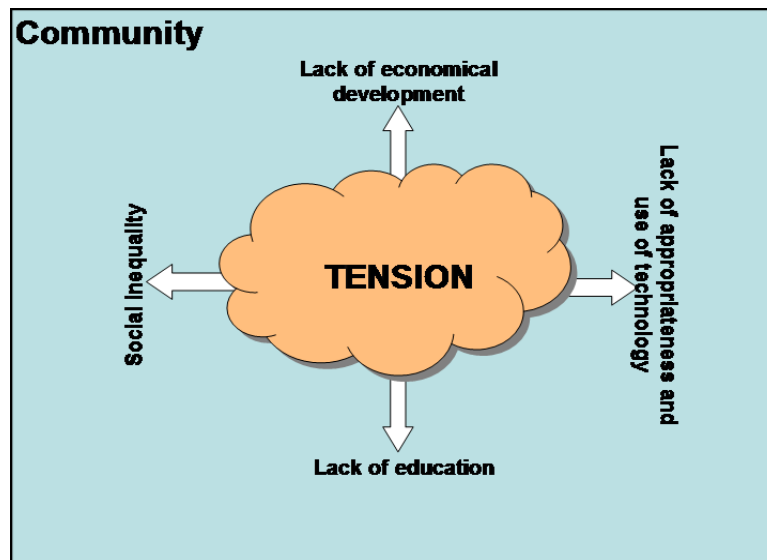


Figure 1 Community in Tension (Parker & Pereira, 2008)

Stable Communities or Community of Stability (CoS)

Gigler (2004) argues that technology should not exclude citizens, but rather be beneficial to the community by strengthening relationships. Decreasing tension within a CiT and consequently countering the negative effects of tension factors should be the starting point to stabilising a CiT. This would include social empowerment, economic development, education and appropriating the use of technology (See Figure 2). A *Community of Stability* (CoS) would ensure a sense of belonging or locality and community sentiment as suggested by Day (1999:10). The use and appropriateness of available technology could be used to increase stability in such communities

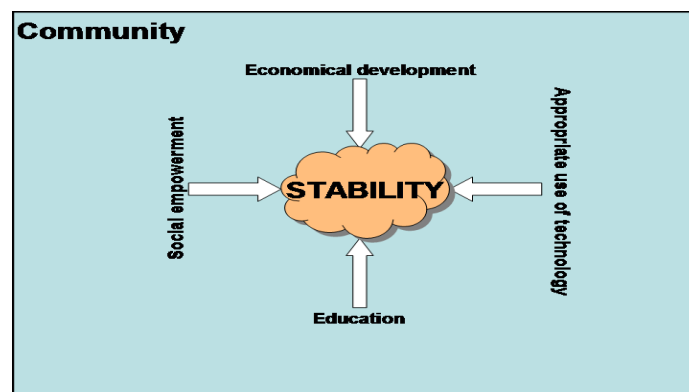


Figure 2 Stable Community or Community of Stability (Parker & Pereira, 2008)

Participatory process

Traditional design approaches were characterised by designers acting as ‘experts’ with the end-users playing a typically passive and subordinate role. Gradually however, there emerged an understanding of the link between this non-inclusive strategy and the often lack of ownership of the resultant designs. This lack in design adoption is especially prevalent when the community shares a different paradigm to that of the designer. The identified shortcomings of this top-down approach in part informed the more enlightened co-design (or co-development) approach that came to be known as *Participatory Design* (PD). In the PD ethos, practitioners engage the embedded and tacit design knowledge that is inherent in all those affected by a system or design – by people who have the ability and right to influence changes to a given system. Thus by co-opting and engaging the creative aspirations of end-users through a consensual participatory process, the likelihood of successful buy-in, and sustainability of the enterprise is greatly enhanced (Futerman & M’Rithaa, 2007).

PD (as elaborated in Table 1) is more akin to ‘participation as an end’ rather than the more traditional ‘participation as a means’, which only sought user-sanction of an already completed design (*ibid*).

Table 1 *Participation as a means versus participation as an end* (Oakley in Kumar, 2002:26)

Participation as a means	Participation as an end
Implies the use of participation to achieve some predetermined goal or objective	Attempts to empower people to participate in their own development more meaningfully
Attempts to utilise existing resources in order to achieve the objective of programmes/projects	Attempts to ensure the increased role of people in development initiatives
Emphasises achieving the objective rather than the act of participation itself	Focuses on improving the ability of the people to participate rather than just achieving the predetermined objectives of the project
Participation is generally short-term	Participation is a long-term process
Participation as a means, therefore, appears to be a passive form of participation	Participation as an end is relatively more active and dynamic than participation as a means

Community Champions

The role of key actors in the form of community champions greatly enhances the possibility of success for any activity. The role of such champions is particularly pivotal in instances where there is a high degree of novelty or wherein radical change is required by stakeholders to facilitate the adoption and ownership of unfamiliar projects or initiatives.

A servant leadership attitude would serve to consolidate the role of such actors in the life of their communities (Creff, 2004). The efficacy of such an approach to leadership is one of enduring and inspiring expressions of the anthropocentric ideal of *ubuntu*. *Ubuntu* reinforces the principle of reaffirmation of the interdependence of community members by positing that “I am because we are”

(*ibid*). M'Rithaa (2009) further argues that the declaration "I participate, therefore I am" more precisely elaborates the centrality of participation in the *ubuntu* ethos – the communal response to this call is critical to the appreciation of *ubuntu* in participative collective activities.

Bottom-up Approach

A bottom-up approach engenders a more egalitarian, community-owned ethos in which the role of the 'expert designer' or 'ICT specialist' voluntarily relinquishes any delusions to power and accepts to play the role of facilitator by negotiating for such participation with community members. Ehn and Badham (2002) refer to this phenomenon as "the collective designer".

By ceding control the 'project' can grow organically (and often virally) to suit the specific community in which it is rooted. The goal of which is for the project to become autonomous within that community – wherein control and management is devolved to participating communities, and not in the hands of a select group of 'managers'. It is this acknowledgement and utilization of the participant's experience and tacit knowledge that allow a project/design to become rooted and grow in a community.

The Reconstructed Living Lab

The Reconstructed Living Lab is one of ten Living Labs in South Africa, and the first one in the Western Cape. The project has grown out of collaboration between *Cape Peninsula University of Technology* (CPUT), a community organisation *Impact Direct Ministries* (IDM), and the Bridgetown Civic Organisation. It has features that are unique in living labs, as it is community led and is based in a socially deprived area in Cape Town.

Athlone is situated on the Cape Flats of the Western Cape in Cape Town, South Africa. It is today known for two features, a new football stadium and was the location of the recently imploded power towers that used to dominate the area. The society is described as a Community in Tension (CiT). Factors for the grounds of tension include: lack of economical development (such as unemployment and inflation), social inequality (brought about by lack of social services) lack of education and, lack of appropriateness and use of technology (where technology is not being utilised fully within communities). Athlone has all these social problems, and is plagued with violence, drugs and gangsterism.

The RLab aims through the creation, dissemination and application of knowledge to increase the empowerment, upliftment and development of individuals and the Athlone community, including parts of it that are in or headed for tension. They aim to do this through the use of innovative ICT solutions. The focus is to use Innovative ICT solutions to facilitate health and social care of citizens; to inform citizens about problem behaviours, their consequences and preventative mechanism, to education citizens and to train them in specific skills that will generate wealth and an enterprise work style. Its primary aim is to facilitate the empowerment of the individual and the community.

The RLab offers the local community an opportunity to enhance their skills through the use of various technology programmes specially developed to support the needs of the citizens. Another development by RLabs partner, *Impact Direct Ministries*, was a mobile instant messenger aggregation technology that can be used to manage mobile chat conversations. The technology could be used to offer additional support and advice to people affected by substance abuse, HIV, and general social problems. Its

services are available to all members of the local and extended community. By using available technologies appropriately, and the CHISIMBA framework for a systems upgrade, RLabs has set up a series of Advice Support Networks.

Drug Advice Support

Drug Advice Support (DAS), launched in 2008, enables multiple advisors to assist during a given advice support session. The advisors are volunteers who have received relevant training and whose role it is to offer counselling services to people impacted by the scourge of drug abuse. After a year of activity, by August 2009 the DAS system had 9,193 subscribers with more than 750,000 messages being shared. This service was co-developed by the citizens using a participatory approach to development and to address the tension caused by drugs in the community.

Debtbreaker

There has been an increase in the number of South African consumers entering into debt to an estimated 12 million, many of who are unaware of services offered by debt counselors. *Debtbreaker*, launched in April 2009, as a collaboration with a local debt counselling company in the community, aims to offer debt counselling via mobile phones to financially indebted consumers. This initiative has already serviced more than 1000 people via mobile technology. The community champion, a local debt counselling company, now uses the Debtbreaker platform to empower citizens. It is the flexibility of the platform that allows it to adapt to stakeholders and communities abilities and needs.

National AIDS Helpline

In August 2009 RLabs collaborated with non-profit company Cell-Life to provide mobile counselling services to people affected or impacted by HIV/Aids. This project is the first of its kind in Africa providing real time support using mobile chat as a counselling medium. The service started as a community project to educate and inform local communities about the HIV/Aids epidemic using mobile phones as a medium. The growth to a national service shows that a community initiative using participatory design and development can lead to empower citizens nationwide as it allows for natural growth and contextual malleability.

As the above examples indicate, the RLabs aim to place the citizen at the root of the innovation system. This has not often been the case as Stoecker (2005) raised the question of whether community informatics benefits communities or just business and academics. Being controlled by those with funding is essentially a situation, which the community is eager to resist. It is envisioned by the Athlone community that the technology and support processes used will be transferable to other socially excluded groups nationwide and that this will fuel the empowerment of Communities in Tension. The RLabs initiative was achieved by networking and collaboration by stakeholders from the community, academia, government, industry and non-government organisations (NGOs).

The University of Southampton and Malmö University in Sweden are also connected to the living lab and supported early development of this initiative. The community groups included in the project include NGOs, local schools, youth and family centres, citizens and community leaders. The Bridgetown Civic Group and the Impact Direct Ministries (IDM) have been instrumental in engaging the community in the project. Another important factor to this initiative was the identification of

community champions who would drive the projects and engage with the citizens and other key stakeholders.

Using the iterative steps presented in Table 2 proved to be helpful in establishing the community engagement and the Reconstructed Living Lab (RLabs).

Table 2 Iterative steps in Community Engagement

Phases of community engagement executed by the RLabs initiative:
IDENTIFICATION PHASE: - Identify Context and Purpose for engagement - Identify Community Space for engagement - Identify strong community stakeholders who are well respected and active in the community NB: Engagement activities should not be burden to community
PLANNING PHASE: - Planning with Key Stakeholders (Plan engagement activities with Community Members you already know and with those you don't know) - Prioritize engagement activities - Identify roles of stakeholders in Community Engagement - Create your engagement Implementation Plan
IMPLEMENTATION PHASE: - Involve key community stakeholders from the offset - Build Relationships (DO NOT make promises) - Establish Community Champions - Communication mechanisms to enhance engagement - Align with Community (Stakeholders') Vision and Mission
ENGAGEMENT PHASE: - Divide engagement activities in subsections - Engagement with community becomes part of community activities - Monitor Progress of engagement - Maintain relationships with community and its members - Transfer of responsibilities to Community champions
SUSTAINING PHASE: - Establish Community Co-champions who are identified and mentored by Champions - Continuous monitoring of progress - Strengthen relationships with community and its members - Engagement activities objectives/goals measured and assessed - Future engagement objectives identified

The four stakeholder networks: Community, Academia, Industry and Government have produced tangible tools, help, advice and inputs which have made the Reconstructed Living Lab operational (See Table 3). Academic, government and industry inputs have been added to the community to enable it to take a dominant role in the process. The Community Steering Committee has an independent role and is directly responsible for the decisions made at a local level.

Table 3 Stakeholders Activities in the Reconstructed Living Lab (RLabs)

Community	Academia	Government	Industry
Steering Committee	Incubation Space for Ideas	Endorsements	Work Groups
Open Forums	Memorandum of Understanding (MOU) with Community Partner	Steering Committee	Technological help
Development Space	Research	Agencies	Agreements
NGO Partners	Internships Basic training for volunteers	Internships	Contract Research
Workshops	Research Visits	COFISA	
Provision of services	International collaboration	Living Labs of South Africa endorsement	
Choice and patent of new technology	Testing of technology		Provision of technology tools

The Living Labs Harmonisation Cube (Mulder *et al.*, 2008) enabled the RLabs steering group to monitor the development of the project. This tool (See Figure 3) for co-creative research and innovation was developed by The European Network of Living Labs (ENoLL), and embodies a shared reference of methods and tools that correspond with six important themes of collaboration; these being user involvement, service creation, infrastructure, governance, innovation outcomes, and methods and tools (*ibid*).

Figure 3 The Living Labs Harmonisation Cube (Telematica Instituut in the CoreLabs project, 2007)



CPUT plays a pivotal role as an incubation and innovation space to train volunteers to work at the living lab and also to train citizens in life skills that are essential for the community to develop. The non-governmental agency (IDM) provides the community space where technology becomes

operational. There is a local agreement with CPUt that classifies the community as the leading partner. This socio-technical bridge is important to the success of RLabs, as citizens receive free training that builds capacity and enables them to run the project themselves. The uniqueness of this living lab is that the community leads the project and are fully part of the development of innovations.

Capacity building is a key aspect to sustainability and this was achieved through identifying other champions in the community who could drive the system. These co-champions received training to empower them with the skills to sustain the operations of the project. The funding element came through attaching commercial channels to DAS product by allowing other users to use the technology at a cost.

Partnerships with academia, government and industry were also important to ensure the sustainability of DAS and other projects. Through these partnerships endorsements, equipment and additional funding was acquired to support these projects.

The following guidelines shown in Table 4 were drafted from the development of the DAS experience, research conducted as well as lessons learnt from other community projects.

Table 4 Guidelines for a community driven development approach (Parker & Pereira, 2008)

Guidelines for a community driven development approach			
Identify and define the context in which development must occur	Community Driven Planning	Community Driven Development and Deployment	Sustainability
○ Develop the scope, location, population and/or other parameters in which change need to occur ○ Define what needs to change ○ Identify the stakeholders for development to occur ○ Identify familiar ICT's already in place ○ Identify the risk factors and stumbling blocks which might affect the project ○ Identify the resources and skills available not only from the community but from all the other stakeholders such as Software Development	○ Planning should be driven by the community ○ Planning should have the community needs at heart ○ Planning should not be too rigid but should rather evolve along with the growth of the project ○ Decide which procedures and methods will be followed ○ Plan how engagement will occur between the different stakeholders e.g. Project Management tools, Web Sharing Tools, Priority List	○ Develop or adopt methods that will best suit the project ○ Identify champions for each of the stakeholders which would act as a translators between them ○ Innovation should be driven by the Community Champion ○ A focus on delivery of the product ○ Develop local methods to delivery which best suits the skills and resources available ○ Development must take place in the confines of the plans and principles laid out	○ A 'bottom-up' approach for sustainability must be community driven as the beneficiaries of ICT4D ○ The transfer of knowledge should take place from the project's inception ○ Intellectual property should reside with the community ○ Tap into other overlapping communities ○ Identify partners from government, industry or academia to ensure project sustainability

skills, computer
literacy skills of
the CiT.

by the community

Lessons Learnt

The projects described in this paper are considered successful and by extension sustainable primarily because they adopt a bottom-up, inclusive and participatory approach. By acknowledging the goodwill, participation and knowledge of the community members, the said projects learnt themselves more favourably for adoption, implementation and diffusion.

Further, by negotiating with and enlisting the participation of significant 'gatekeepers' and other key actors in the form of respected community champions and effective administration the beneficial impact of said projects was greatly enhanced. Social equity and cohesion can be sustainably advanced through adopting such progressive strategies (Vezzoli, 2007; M'Rithaa, 2009).

Conclusion

Participatory development provides an opportunity for researchers and the community to work together to define a problem, take action and evaluate the outcomes of the project. In the RLabs initiative the community is comprised of individual community members, community leaders, representatives of community groups including local government, regional development and industry partners. All of these actors play an important role in the determining the viability and continuity of these projects. By maintaining a bottom-up approach to projects within communities the sustainability of these projects is greatly enhanced. Academia – by participating in 'live' or real-life co-design projects – can play a significant role by providing incubation spaces for ideas generation, testing of technology as well as enabling international collaboration. In so doing, there is an iterative and mutually validating dynamic as theory meets practice in a participative and inclusive collaborative space.

References

- Arunachalam, S. 2002. Reaching the unreached: How can we use ICTs to empower the rural poor in the developing world through enhanced access to relevant information? *Proceedings of the 68th IFLA Council and General Conference*, Glasgow.
- Butler A. 2004. *Contemporary South Africa*. Basingstoke: Palgrave Macmillan.
- Creff, K. 2004. *Exploring Ubuntu and the African Renaissance: a conceptual study of servant leadership from an African perspective*. School of Leadership Studies, Regent University. http://www.regent.edu/acad/sls/publications/conference_proceedings/servant_leadership_roundtable/2004pdf/cerff_exploring_ubuntu.pdf [1 March 2007].
- Day, P. 1999. Community Development in the Information Society: a European perspective of Community Networks. *SIGGROUP Bulletin*. 20 August 1999.
- Ehn, P. & Badham, R. 2002. Participatory design and the collective designer. pp. 1-10 in: T. Binder, J. Gregory & I. Wagner (eds). *Proceedings of the PDC 2002 Participatory Design Conference*, 23-25 June 2002. Malmö.
- Futerman, R. & M'Rithaa, M.K. 2007. Engaging with the Elderly: a participatory approach to compatibility. *Proceedings of the 10th Ergonomics Society of South Africa (ESSA) Conference on Applied Ergonomics*, International Convention Centre, 21-25 June 2007. Durban.

Gigler, B. 2004. Including the Excluded: Can ICTs empower poor communities? Towards an alternative evaluation framework based on the capability approach. *Proceedings of the 4th International Conference on the Capability Approach*, 5-7 September 2004. University of Pavia, Italy.

Kumar, S. 2002. *Methods for Community Participation: a complete guide for practitioners*. London: ITDG Publishing.

Minani, D. & Parker, M. 2008. A case study about the use of Facebook for social encouragement among citizens within a community on the Cape Flats. *Proceedings of the 10th Annual Conference on World Wide Web Applications*, 3-5 September 2008. Cape Town.

M'Rithaa, M.K. 2009. Embracing sustainability: revisiting the authenticity of 'event' time... *Proceedings of the 2nd International Symposium on Sustainable Design (ISSD)*, 5-6 November 2009. Sao Paolo.

Mulder, I., Velthausz, D. & Kriens, M. 2008. The Living Labs Harmonization Cube: Communicating Living Labs' Essentials. *Electronic Journal for Virtual Organizations and Networks*, 10: 1-14.

Nitsckie, W. & Parker, M. 2009. A Community driven ICT development approach to empower a Community in Tension. *Proceedings of the 3rd International IDIA Conference*, 28-30 October 2009. Berg-en-dal Camp, Kruger National Park.

Parker, M. & Pereira, J.P. 2008. Blogging as a change agent to empower citizens in communities with tension. *Proceedings of the 10th Annual Conference on World Wide Web Applications*, 3-5 September 2008, Cape Town.

Peterson, C., Maier, S.F. & Seligman, M.E.P. 1993. *Learned helplessness: a theory for the age of personal control*. New York: Oxford University Press.

Plüddermann, A., Parry, C.D.H., Cerff, P.J., Bhana, A., Pereira, T., Potgieter, H.,

Gerber, W., Nqini, T. & Petersen, P. 2007. *Monitoring Alcohol and Drug Abuse Trends in South Africa* (July 1996-December 2006). *SACENDU Research Brief*, 10(1): 1-12.

Stoecker, R. (2005). Is Community Informatics good for communities? *The Journal of Community Informatics*, 1(3): 13-26.

Telematica Instituut in the CoreLabs project. 2007. *EnoLL (European Network of Living Labs). Harmonizing methods and tools: a cube experience*. http://www.ami-communities.eu/pub/bscw.cgi/d310159/ENoLL_leaflet_harmonization_cube.pdf [4 May 2011].

Vezzoli, C. 2007. *System design for sustainability. Theory, methods and tools for a sustainable "satisfaction-system" design*. Rimini: Maggioli Editore.