Opening the black box: Adoption of innovations in voluntary organisations

Yanuar Nugroho

Manchester Institute of Innovation Research (MIoIR/PREST),
Manchester Business School, The University of Manchester.
Harold Hankins 8.07, Precinct Centre, Oxford Road,
Manchester M13 9PL, United Kingdom.
E-mail: yanuar.nugroho@manchester.ac.uk

Abstract: Despite the huge attention paid to research into the adoption of technological innovations in government agencies and business firms, little attention has been paid to other types of organisations such as voluntary organisations (VOs). As a result, many things remain unknown: the patterns of uptake and adoption in VOs, the process of the transformation both of the organisations and the way they implement the innovation, and its implication. This paper attempts to address these problems. By presenting the case of Indonesian VOs, at a theoretical level this research is concerned with the diffusion of innovation and the effects on the practice of VOs and voluntary movements. These concerns are explored by examining two related empirical issues: (i) the links between innovation and the organisational performances, and (ii) the construction of innovation diffusion and impacts in organisations that define those links.

Keywords: adoption, technological innovations, voluntary organisations, non-for-profit, non-governmental

1. Introduction

Research concerning organisations within the voluntary sector has become more relevant today as such organisations play increasingly important roles in society. These roles are not limited to traditional activism, like mobilisation of aid and humanitarian relief, improvement of livelihood or protection of rights and promotion of democracy [1, 2], which have continuously characterised the dynamics of voluntary sector vis-à-vis state in the modern world [3, 4, 5, 6]. These organisations have also shaped, or at least influenced, the dynamics of the business sector. Such activity has, driven consumers in ethical and fairer trading [7, 8], ethical investment, 'green' banking, provision of organic or healthier products, among others [9, 10], and demanded more socially and environmentally responsible business practices such as in the instance of corporate social responsibility (CSR) campaigns [11, 12].

Hence, voluntary organisations (VOs) are important for business management, but their own management and innovation are very interesting in their own right. VOs have innovated in many ways in order to build a sustainable base of supporters (e.g. beneficiaries, donors, partners networks, among others) otherwise they will not remain

‘cutting edge’ and relevant [6]. However, innovation in voluntary sectors seems to be under-studied compared to, for example, innovation in private or public sectors [13]. This topic has the potential to become of increasing interest given the current evolution of the sector and the performance of the organisations within it [14]. Markedly, networks of organisations in the voluntary sector have promoted partnerships among different actors, both within and between economies [8, 12]. Undoubtedly, a more genuine global voluntary movement has now been provided, with an excellent opportunity to advance its agenda. This has put more weight on the relevance and importance of innovation study in VOs.

Innovation is usually understood to be distinct from invention. While invention is the first occurrence of an idea for a new product or process, innovation is the first attempt to carry it through into practice [15]. Obviously they are closely linked and difficult to distinguish one from the other [16]. Literature on innovation is extensive and covers a wide range of topics. It generally focuses on the process of innovation and the economic factors determining the development of innovation [17, 18, 19], patterns of innovation and its diffusion [18, 20, 21, 19] and the relationships between organisational structure and technological capacity [22, 23]. Furthermore, studies on the role of innovation in economic and social change show a trend towards cross-disciplinarity. This reflects the fact that no single discipline is capable of dealing with all aspects of innovation. However, it appears obvious that the study of innovation is rooted very much in the commercial, profit or private sector. Based on Schumpeter’s idea of creative destruction and the economics of technological change [15], innovation study has been undertaken mainly in commercial, private, industrial sectors with a focus on manufacturing [24], and lately also in services [for example see 25, 26, 27]. Only recent development shows that innovation has now also been adopted in state and governmental bodies, mainly to improve government productivity and the effectiveness of services it provides for public and sometimes deliver democracy [see, for instance 28, 29].

With regard to organisations within the voluntary sector, innovation needs to be understood in a different context. That is, even if VOs actually innovate or adopt innovations, what they do may not be recognised as innovation within the traditional conception of innovation as explained above. This may be because of the view that an innovation is not an innovation until someone successfully implements and markets that idea [a typical example is 30, based on 15]. This is very true for the private sector (or public sector when it generates some income or saves financial resources) but not always the case with the civil society sector –the primary motivation of which is not profit seeking. A traditional Schumpeterian interpretation of innovation makes consideration of new products; new methods of production; new sources of supply; the exploitation of new markets and new ways to organise business [15]. For organisations within the voluntary sector, however, this traditional notion of innovation may only contribute part of the answer to questions about the role it can play in creating a more dynamic society. What matters more for VOs is not the ‘marketing’ of new ideas for profit, but rather, how those ideas are diffused and adopted among themselves in order to achieve societal goals.

This paper explores questions centred around (i) to what extent, in what ways, and for what purposes have technological innovations been appropriated by VOs? (ii) what are the processes by which innovations are imported into and adopted by VOs? (iii) how do VOs adopt innovations, and how are they deployed strategically in the operations (and in an effort to further the aims) of the organisations? (iv) what are the implications for, potential of and challenges faced by such appropriations? Using mainly the classical

adoption framework [18, 19] and assisted by adaptive structuration theory [31, 32, 33, 34] derived from Giddens' notion of structuration [35], the study makes its case by anchoring its empirical ground on how VOs innovate by adopting new media and information technologies, particularly the Internet, in the Indonesian context. This context is taken deliberately as VOs in developing economies play a relatively more significant role in societal development when compared to their counterparts in developed countries.

Responding to a paucity of research into the adoption of technological innovation in VOs, this research shows that such adoption and use in VOs is never simple and straightforward. Rather it is multifaceted and often raises uncertainties, given that VOs by and large adopt and use technological innovations in many different ways compared to other types of organisation. But it is also this challenge that brings enormous opportunity for VOs once the technology is appropriated in strategic (and in most cases, political) ways. Despite problems and difficulties, the adoption of innovations in VOs often bring significant implications not only to the organisation's internal managerial performance but more importantly to the external aspects of their work, particularly the expansion of networks of voluntary movement which often span across the globe and implicate global businesses and state governance.

From an innovation perspective, examining how Voluntary Organisations (VOs) are innovating in the way they work by using and adopting technological innovations, is both challenging and intriguing. Firstly, VO are, by nature, different from firms which have been receiving much attention in innovation studies. Secondly, while commercialisation and profit making is essential in innovation within the private/business sector [36, 37, 38, 24, 39], it is very rarely –and mostly not—the case with VOs improving the ways they work. Instead of profit making, it is societal objectives like promotion of democracy or widening public participation in politics and development that is of concern to most VOs. These are the tensions and challenges that this paper will address.

This paper starts by reviewing relevant literatures on VOs and the diffusion of innovation, focusing on the diffusion of the Internet as technological innovation. The paper then introduces and situates structuration perspective to understand how the adoptions are structured within the organisations. Using the fieldwork data on Indonesian VOs the way innovations are adopted, implemented and normalised in the organisations are then discussed. It looks at the impacts of the adoption- both to the organisations and their beneficiaries. Finally the paper offers some concluding remarks.

2. Literature Review

2.1. Understanding the nature of voluntary organisations

In the scholarly literature, the term 'voluntary sector' finds its roots in 'third sector' or 'civil society sector'. In fact, these terms are often used interchangeably [40, 41]. Scholars often perceive civil society as one of the cornerstones of vibrant societal sphere; providing voices for the disenfranchised and creating centres of influence outside the state and the economy [42, 43, 40, 41]. The VO, thus, in fact traces itself back to the sphere of social life which organises itself autonomously, as opposed to the sphere that is established and/or directly controlled by the state and the market [40:4-8]. In this context

the VO is defined as *the autonomous, democratic civil society entity, as expressed in organisations independent of the state and of corporate structure*.

Since the 1990s interests in civil society or voluntary sector studies have increased rapidly in the directions of both general-theoretical [like 44, 45, 46, 47, 48, 41, 49] and more specific-empirical [such as, 42, 50, 1, 51, 46]. Research about organisations within the voluntary sector has been approached from different perspectives and frameworks related to several scientific disciplines and policy areas. While the importance and visibility of VOs have grown rapidly, voluntary sector itself has become a quite diverse and diffuse field for studies. As result, there is an increasing dispersion with cognitive gaps in the research area: neither are theoretical concepts and categories used in empirical studies, nor are empirical dimensions connected to theoretical concepts [42]. At the same time, as the awareness of the heterogeneity and diversity of the voluntary sector has also become widely known, a differentiation emerges. This results in difficulties in forming an integrative and solid knowledge on the realities of the voluntary sector. This is reflected partly in how the terminology of 'civil society' and 'voluntary/third sector' (including VOs) theoretically emerge and is often debated in LSE's canonical work: the *Global Civil Society Yearbook*. This work uses whichever terms preferred to describe civil society and voluntary sector "with whatever definition or connotations they bring to it" [52:5] even if they are debatable. However, this does not annul the importance of the sector. On the contrary, it adds even more weight, providing evidence that the civil society sector –as well as the organisations within it—is conceptually *different* to the public, private and commercial, and governmental sectors.

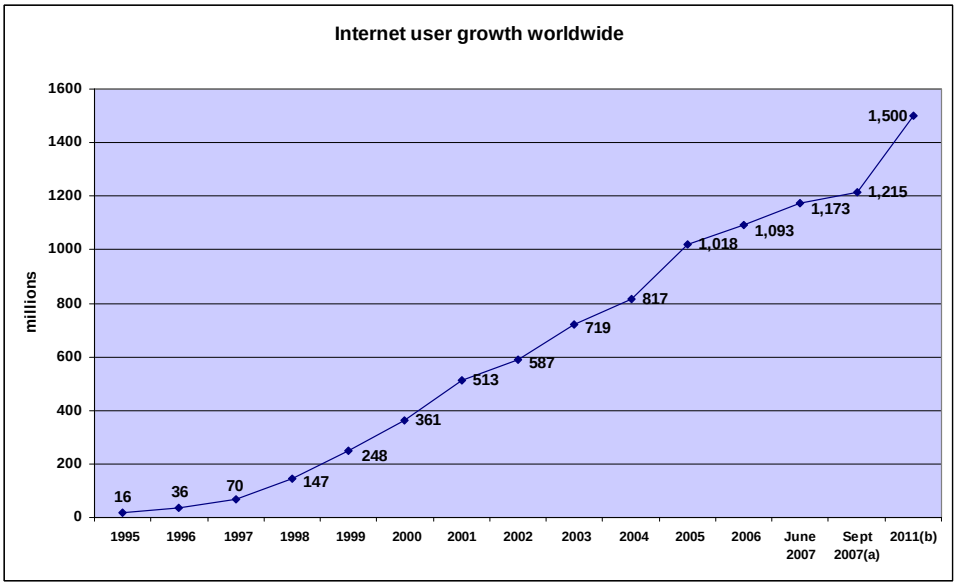
VOs include local community groups, non-governmental organisations (NGOs) and other groups independent of the state and business interest. It might be worth-noting that a NGO, as widely conceptualised, is a VO which has been built upon its identity as a mere *non*-state or *non*-state-apparatus actor [53, 54, 3]. Whereas, there are other groups within voluntary sector, formally organised or not, whose identity is not, or not only, built upon such a position. The emergence of student movement groups, anti-globalisation movements, urban poor groups, trade unions and ethical consumer movements, among others, marks the surfacing of new kinds of voluntary organisations in our modern time. The question is: toward which orientation is the movement of VOs addressed? What activisms do VOs engage? There are two big categories: The first category of VO activism is in promoting civic engagement, particularly at grassroots level, which is inevitably political. This area –grassroots politics and mobilisation– is one main area of voluntary activisms with VOs working in this area commonly labelled as 'social movement organisations', 'political VOs' or 'advocacy VOs'. The second area is development, particularly orientated toward poverty reduction. Among many examples, VOs not only assist the poor, but also help in empowerment through education and training, resettlement and family health and other welfare matters. Some progressive VOs also pursue women's affairs, environmental issues, human rights, and transfer technology to village communities. VOs working this area are often generally categorised as 'development VOs'.

All this suggests that the fulfilment of feelings of justice and equal distribution of access to development seems to become the most important and urgent agenda for voluntary sector. As the roles of VOs are of paramount importance to promoting a plural, open and egalitarian society, it is of no surprise to learn that they too, like private companies and state institutions, are catching up with technologies which benefit them in delivering their works, like the Internet.

2.2. The Internet as technological innovation: Promises and perils

With a jump in its users from tens of thousands in the early 1990s to nearly a billion a decade later, the Internet has perhaps diffused faster than any other technological innovation in modern times. Historically, the Internet was a military technology innovations [for excellent history of the Internet see, among others, 55, 56]. What is interesting about the history of Internet innovation is that it "was born at the unlikely intersection of big science, military research and libertarian culture" with the fact that "all the key technological developments that led to the Internet were built around government institutions, major universities and research centres" – as indicated by Castells [57:17-22]. Despite this innovation, the growth of Internet use was limited for the first twenty years. It was not until the beginning of 1990s when the Internet gained popularity that its users reached tens of thousands, to the mid of 1990s when the number exceeded 10 million. But it was all nothing compared to what happened one decade later. Within only ten years, the number of Internet users leaped to over one billion worldwide. There is currently an estimated 1.173 billion Internet users worldwide, representing 17.8% of the world population (2007), and this number is projected to reach 1.5 billion (or about 22% of Earth's population) by 2011 [58, 59].

Figure 1 Internet user growth worldwide



Source: Adapted from Internet World Stats [58];
(a) estimated by IWS [58], (b) estimated by eTForecasts [59]

As a technological innovation is the Internet radically new, or merely novel? In Graham's philosophical inquiry on the Internet [60], the difference between the two is clear: while the original invention is radically new, any subsequent adaptation and improvement will always be merely novel. However much it may be welcomed, improvement is only about extensions and/or refinements of the original innovative concept and does not represent new idea [60:25]. Yet, this inquiry is bound to be debated,

especially when historical contingency is taken into account. Therefore, one way to answer to this question, when applied to the Internet, is by looking at how the Internet is "expected to be transforming in their impact on the character of personal and social life across a wide range" [60:21]. Implicitly, the more the Internet transforms societal life, the more it can be claimed as a transforming technology –and thus, the more it can be considered as radically new. And understandably, this all sources from the Internet's technical features. These features –including e-mail [57, 61], World Wide Web (web) [62, 57, 63] and most importantly the well established protocol [55, 56]—has enabled Internet technology to create another world that people do not just observe, but can also exist and act in it –hence *cyberspace*, a 'spatial' dimension created by cybernetics in which 'life' is possible [64, 57, 60]. Life within cyberspace affects life outside cyberspace, and the other way around. That is why the distinction between the two is not about *virtual* vs. *real* for both are real, but rather, probably more accurately, between *online* vs. *offline* interaction.

This issue has become more important for communication, which is central to human life, has been broadly mediated by the Internet. It is through this Internet-mediated communication that social and cultural transformations take place [65], and that identities, relationships, and communities are being changed and influenced [64]. Opinions about the cultural and social impact of the Internet are initially polarised into extreme positions. On the one hand, there is much hyperbole concerning the wonderful, unique advantages of the technology (*technophilia*); on the other, there is significant fear concerning terrible effects that are foreseen (*technophobics* or *techno-ludism*) [66, 67, 68]. Castells [69] tries to bridge this utopian-dystopian tension by raising a 'dialectical interaction' between technology and society. To him, technology does not determine society. Instead, it *embodies* it. But neither does society determine technological innovation since it *uses* it. The present phase of capitalism has become possible because of innovations in microelectronics, telecommunications, digital electronics, and network computing, which represent the rise of a new technological developments in information technologies– the paradigm which becomes the basis of socio-economic relations. Despite the overarching synthesis what Castells presupposes here is the widespread diffusion of technology. It is important therefore at this point to understand some fundamentals of diffusion theory.

2.3. Diffusion of innovations

According to the well-known scholar in diffusion theory, Everett Rogers [18, 19], diffusion refers to the spread of innovation, that can be abstract ideas and concepts, technical information, and actual practices, within a social system, over time, from a source to an adopter, via communication and influence [18:11-30]. There are five adopter categories: innovators, early adopters, early majority, late majority and laggards [18:261-263]. As argued by Rogers, *innovation decision process* is the key to understanding the diffusion process as potential adopters progress over time through five stages in the diffusion process. Stage one, *knowledge* (when adopters learn about the innovation), is heavily influenced by the *adopter characteristics* comprising of (i) socioeconomic characteristics, (ii) personality variables, and (iii) communication behaviour. Stage two, *persuasion* (when they are persuaded of the value of the innovation), is highly determined by the *perceived attributes of innovation*, i.e. (i) relative advantage, (ii) compatibility, (iii) complexity, (iv) trialability and (v) observability. Next, stage three, *decision* (when

they decide to adopt it), is the stage of activities which lead to either adoption, i.e. decision to make full use of an innovation as the best course of action available, or rejection, i.e. decision not to adopt an innovation. When the adoption is decided, the following stage four, *implementation* (when the innovation is implemented), takes place. Implementation implies behaviour change as the new idea is put into practice. Lastly, in stage five, *confirmation* (when the decision is reaffirmed or rejected), the decision-making unit seeks support for the innovation-decision already made and may annul this decision if exposed to conflicting messages about the innovation [18:162-184].

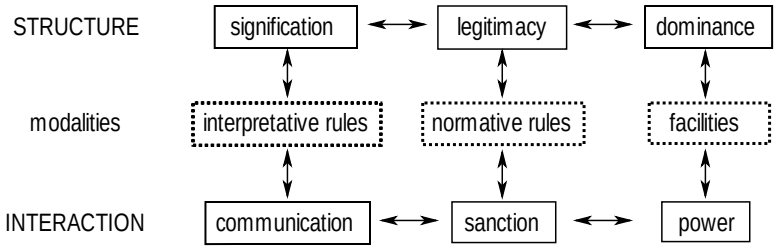
Further, to understand implementation in more detail, Rogers theorises two stages. Implementation stage (which consists of redefining/ restructuring, clarifying and routinising) occurs after initiation stage (which comprises of agenda setting and matching), marked by decision to adopt an innovation which divides the two [19:420-430]. In the initiation stage there are two key phases, i.e. agenda setting and matching [19:422-424]. Agenda setting is a stage when general organisational problem is defined and creates a perceived need for an innovation. In this stage, as problems are identified and needs are prioritised, the search for innovations begins. Matching is the next stage in the initiation at which a problem is matched with an innovation in a planned and designed way. It is a conceptual feasibility test to see how well the innovation fits the problem. Meanwhile, in the implementation stage there are three important phases. One, *redefining/restructuring* – this is a two way processes where *(i)* the innovation is re-invented to accommodate the organisation's needs and structure and *(ii)* organisation's structure is modified to fit the innovation. In this stage, innovation starts losing its 'foreign' character. Two, *clarifying* – this happens when the innovation is put into more widespread use in the organisation to clarify the meaning of the new idea to the organisation's members. It is the stage where innovation champions usually play an important role. Last, *routinising* – this takes place when an innovation has become incorporated into the regular activities of the organisation and thus the innovation process in an organisation is completed [19:424-430].

Despite its popularity, Roger's theory has been criticised. Criticisms are mainly based on the argument that the model is too simplistic and hence reductionistic. For example, the absence of supply-side in the diffusion model [21], and the lack of the inclusion of complex concepts, variables, and processes into the diffusion research to minimise it from being too reductionistic [20]. A different approach to criticising Rogers' diffusion theory is taken by Carr [70], who classifies Rogers' theory and other diffusion theories [e.g. 71, 72, 73, 74] according to (1) the view of the *goal* of technology diffusion (systemic change/macro-level v. product utilisation/micro-level), and (2) the *philosophical view* of technology diffusion (determinist v instrumentalist). The *systemic change/macro-level* view concerns institution and systemic change initiatives, while the *product utilisation/micro-level* view pays attention to the individual adopters and a specific innovation. *Instrumentalists* believe that the adoption process is evolutionary and the change is caused by human aspirations and that the main issue is human control over innovation. For *determinists*, technology is the primary cause of social change [70]. It seems that such classification has given birth to a *subjectivist* vs. *objectivist* approach in diffusion modelling with subjectivist concentrating on the individual human being and their motivation for adoption, and objectivists avoiding reference to an individual predicate [75:2].

2.4. Adoption as a structured practice: Introducing Adaptive Structuration

Believing that diffusion research is beyond the tension of *subjectivist* vis-à-vis *objectivist* as well as *determinist* vis-à-vis *instrumentalist*, scholars have tried to incorporate diffusion research with *Theory of Structuration* [35]. Among the endeavours is *Adaptive Structuration Theory* or AST posited by DeSanctis and Poole [31], which has been explored in a few cases [75, 76, 32, 33, 34]. Central to Giddens' structuration theory is the understanding that the relationship between actor's interaction (action) and structure is a duality, instead of dualism, i.e. that they are recursive and produce and reproduce each other in an ongoing, routinised cycle [35:2]. There are three ontological levels of structures and interactions, i.e. signification-communication; dominance-power; and legitimacy-sanction, within which routines are enhanced by modalities [35:29].

Figure 2 Three ontological levels of social structures



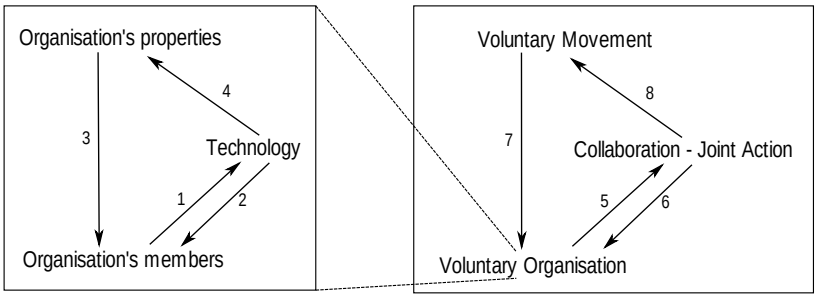
Source: Giddens [77:82, 35:29, 78:129]

DeSanctis and Poole [31] study the interaction of groups and organisations adopting information technology based on Giddens' structuration theory and propose the adaptation of the theory in two important aspects. *First*, the confirmation of information technologies as social structures that enable and constrain interaction in the workplace or organisation [31:125-127, 75, also cited in 32, 33]. It adopts the central concept of structuration that the structure of actor's/adopter's interaction (i.e. that emerges in actor's action as they interact with the innovation) and the structure of technology (i.e. that are provided by technological innovation) exist in a relationship of duality with each other in that they shape and reshape each other continuously. *Second*, the confirmation about the importance of perceptions which maintains the recurring social practice of adopting technological innovation [31:128-131, 75, also cited in 32, 33]. Adopters or users use technology and create perceptions about how it can be applied in their activities, which in turn influences the way in which technology is used and mediates its impacts on themselves. This is what Giddens refers to 'structuration process', which produces routine as social practice [35:75-76], i.e. the adoption or diffusion of innovations.

It is clear that there is a two-way relationship in the diffusion/adoption processes between the propagating diffusion institution (or the *explanans*) and the adopting institution (or the *explanandum*) [75, 32]. The structure of technological innovations (technological structure) diffuses to the adopting institutions (e.g. organisations) and influences use behaviour, which in turn, modifies the adoption of innovations. Just like Giddens' original proposition about social practice, this diffusion/adoption social practice between technological structure and use behaviour is also exercised on the three

ontological levels: signification-communication, legitimacy-sanction, and dominance-power [75:12]. Within diffusion paradigm, this 'routine-guided action' is incited through generalisation of use behaviour and reciprocally routines are laid down in structure, which is reproduced through use behaviour by executing reflexive control [75]. As soon as routines of innovation use stabilise, they become structural, subsequently structuring and guiding use behaviour. Repetitive innovation use builds and transforms social routines, thus guaranteeing system reproduction [32]. As the use of technology is fundamentally a recursive process of constitution, i.e. an enactment of a 'technology-in-use' structure [31, 33], it is important to recognise the consequences of such enactment, be they intended or unintended, deliberate or inadvertent. [33:411]. In the instance of organisations using Internet technologies, Orlikowski's note about nested and overlapping structures is true. There are at least two 'layers' of social systems: one is the individual organisation itself as a social system (at *intra-organisational* level) where people's interaction with technology is structured [32, 33], and two is the organisational context (network, groups) as another social system (at *inter-organisational* level) where interactions among organisations are also structured. Using the example of voluntary organisations (VOs) as adopting units, the nested structure is depicted below.

Figure 3 Nested social systems of enactment of technology in organisation



Source: Modified from Orlikowski [32:410], using VOs as an instance. The inter-organisational context in which a VO operates is voluntary movement, through collaboration and joint action

At the intra-organisational level, as Orlikowski's [33] explains, deriving from theory of structuration, technology is both a product of (arrow 1) and also a medium for (arrow 2) human action. At the organisational level, institutional properties influence how organisation's members interact with technology (arrow 3), and at the same time, the interaction influences the institutional property of the organisation (arrow 4). In the VO example above, at the inter-organisational level, join action and collaboration is also both a product of (arrow 5) and a medium for (arrow 6) VO's activities. In the network of voluntary movement, institutional property of the movement influences how individual VO collaborates and joins its action (arrow 7) and at the same time the collaboration and the join work influence the movement itself (arrow 8).

In this light, by taking the instance of VOs using the Internet, the focus of studying the implication of the internet use would be twofold. First, at intra-organisational level, it is important to examine the influence of the use of the Internet on the organisation itself (as identified by arrow 4). Second, as the use of the Internet is substantial in inter-

organisation works, it is also important to study how such works mediate an individual organisation's work (reflected by arrow 6) and influences the inter-organisation context (reflected by arrow 8) altogether, at the inter-organisational level.

3. Methods and framework of investigation

3.1. The context

VOs have been playing crucial roles in the social, economic and political landscape in Indonesia which arguably has become one of the most strategic developing economies in the Southeast Asia region. This has become both fascinating and difficult to understand as Indonesian politics just revived into a more democratic administration after being dominated by an authoritarian regime in 1969-1998. In order to study Indonesian VOs, efforts have been made by Indonesian scholars [for example, among others, 79, 80, 81, 82, 83, 84, 85, 86, 87] as well as Western academics [e.g. 88, 89, 90, 91, 92, 93] to portray Indonesian the voluntary sector, particularly by examining the role of NGOs as the most visible subset of it. With regard to their typology, many Indonesian *political VOs* are often perceived as anti-business for they advocate consumers' rights, support labour and trade union activities and protect environment from business' wrongdoings through research, lobbies and advocacy endeavours. This type of VO also risks being accused of being anti-development because of their critical stands towards status quo policies, if not attributed to 'trading the state's interest' for their watchdog activities, carrying out campaigns abroad, organising testimonial sessions before international bodies like Amnesty International or Human Rights Commission at the UN, and mobilising protests against governments' policies on development in multilateral meetings like World Trade Organisation Ministerial Meetings [81, 82, 94]. On the other hand, through the works of many *development VOs*, small-medium enterprises (SMEs) benefit from various skills training and have better access to marketplaces; farmers learn more about organic and sustainable farming processes; women in rural areas now have access to micro-credit schemes and have become empowered domestically; and consumers' interest in getting more healthy products and produces through fairer trade have been more widely promoted [82]. It is also through the efforts of various non-governmental groups that the importance and urgency of the fulfilment of workers' rights are brought to the wider public arena; and that in addition to the continuous awareness of civil, political rights and human rights, the discourse of economic, social and cultural (*ecosoc*) rights has also become more public [95].

Apparently, with the development of the Internet and the vast growing number of its users, not only has the technology become an effective tool for business and government, it also has entered the voluntary activism sphere in Indonesia. The development of the Internet in the country began in the early of 1990s. In terms of users and subscribers, Indonesia is lagging behind other countries with only around 5% of the population (230 million) using the Internet. In Southeast Asia, the highest proportion of users can be found in Singapore (29.9%), followed by Malaysia (25.15%). According to APJII (Association of Indonesian Internet Service Providers), over the past few years, the number of Internet users has increased very significantly, leaping to over 770% during 1998-2002, from half a million to 4.5 million [96]. This number was 16 million by 2005 and is approximated to be 20 million by 2007 [97]. However, Internet access is still

highly unevenly distributed, resembling 'technological apartheid' [98] in many regions of Indonesia. Despite the government's efforts, Internet access is still concentrated in big cities in Java and Bali Islands [99]. The situation is now improving [100], although perhaps not much.

It is argued that the richness of the current Indonesian VOs' activism, dynamics and challenges have been much influenced by the use of ICT, particularly the Internet. If during Suharto's authority VOs were using Internet to exchange information and hasten consolidation among different groups of voluntary sector to challenge –and finally bring down—his undemocratic administration [101, 102, 103, 104], in the aftermath of the regime the Internet has been visibly used by VOs to consolidate the democratic processes [105], improve livelihoods (as undertaken by many development VOs) and reclaim rights (as fostered by many advocacy VOs). More activities within the voluntary sector have become attached to the Internet: from participation for election [88, 105], to understanding globalisation discourse [106], widening of cyber-civic space for activism [103, 107], to assisting VOs working in rural development [108, 109].

3.2. Research instruments

The empirical research was exploratory in nature and took place in 2005-2006. It employed a multi-method approach, consisting of a country-scale survey involving 268 VOs, in-depth interview with 35 VOs, and a series of workshops in three provinces attended by 72 VOs in Indonesia. The combination of methods is essential in systematically probing and understanding the multifaceted links between the adoption and implementation of innovation, the dynamics of VOs and the social transformation it affects.

The survey was designed to capture the *typology* of Indonesian VOs (size, nature of organisation, main issues and concerns and activities) and the *pattern of Internet adoption and use* (i.e. period of use, expenditure, reason for using the Internet, significance of use, fields of use, among others). The target population was the VOs listed in the four publicly available directories (i.e. SMERU, TIFA, LP3ES and CRS). In total, the survey was sent to 957 VOs and was responded to by 268 organisations (28% response rate) based in 27 provinces (out of total 32 provinces) in Indonesia. The data was analysed using Multiple Indicator Multiple Causes Latent Class Analysis (MIMIC-LCA) [110, 111, 112].

In-depth interviews were conducted to provide in-depth insights about Internet adoption, use, and impacts. Interviews were arranged with 42 leaders or senior activists from 35 VOs. Interviews were carried out for about 90 minutes on average (ranging from 45 minutes to 120 minutes), recorded and transcribed for analysis. Permission was asked for the interviews to be recorded and interviewees were allowed to exclude certain parts of the interview from the recording when it concerned parts that they regarded as 'sensitive'.

At the end of empirical data collection, three workshops were organised in Jakarta, Surabaya and Yogyakarta (attended by 35, 33, and 26 participants respectively representing 79 VOs in total), and two focus groups (FG) were set up in Aceh (attended by 18 participants in total, representing 9 organisations). Workshops and FG were chosen not only because they are familiar means by which VOs discuss their activism [as also reported by 79, 80 in Indonesian context], but also because they provide opportunities for

respondents to share views and to enable collective reflection upon the issues in a way that would not have been feasible using other methods [113].

3.3. Profile of respondents

In terms of age, the biggest proportion of respondents was VOs of 10 years old (33.86%), followed by 5-8 years (26.38%), 2-5 years (20.87%) and 8-10 years (12.6%). With regards to employment, small-to-middle sized VOs seemed to dominate. VOs employing ten or less full time staff made up the biggest part with 32.64% (6-10 staff) and 34.71% (5 or less staff) share respectively. Concerning annual turnover, the biggest proportion was VOs managing less than 2 billion IDR per year (89.52%), with various proportions. Similar portions were shared by VOs with turnover of 100 million IDR or less per year (30.95%) and of between 100-500 million IDR per year (31.43%). A smaller section of VOs seemed to manage bigger money: 15.24% of VOs managing 500 million to 1 billion IDR per year; 11.9% controlling between 1 and 2 billion IDR per year; and only 10.48% having access to more than 2 billion IDR per year. It seems that while long-established, middle-to-big sized organisations characterise Indonesian VOs under study, a relatively smaller portion of VOs manage higher financial resource.

In terms of typology, more than 60% were advocacy VOs, and around 40% development. They were mixed between single, centralised bodies (42.91%) and networks of many groups (33.58%). Some of the VOs considered themselves as think-tank organisations (48.13%), but a similar proportion saw themselves as mobilising action and people (32.46%). Another important feature is that the majority of VOs were formal, officially registered (73.13%). A minor proportion of the respondent VOs had certain religious affiliation (7.84%) and were informal (8.58%). A small proportion (9.33%) were a mixture of organisations concerning education, environment, regional autonomy and grassroots aspiration channel.

There was no particular issue or concern that is really salient among respondent VOs. Instead, they seem to have shared equal concern towards various issues. There were some outstanding issues embraced by more than half respondent VOs like civil society empowerment, environment, poverty and education. About half VOs were interested and concerned about development, gender equality, human rights, economic and social (ecosoc) rights and democratisation. Their activities revolved around training (78.73%), capacity building (66.04%), research (56.72%), advocacy (55.97%), publication (52.24%), mass-organising (51.87%) and lobbying (37.31%). The main activities of Indonesian VOs seem to be quite diverse. Training and capacity building, the highest, were carried out by more than two-third VOs while lobbying, the lowest, is performed by more than one-third VOs under study. It is not difficult to see that training and capacity building were the most prevalent activities of Indonesian VOs, taking into account that civil society empowerment was claimed to be the highest concern of these organisations [as confirmed by, e.g. 82]. Moreover, research, publication, advocacy and organising activities look to have characterised more than half the Indonesian VOs under study.

4. Findings and discussions

4.1. Adopter category and spectrum of Internet technologies in use

From the survey where 94.03% used PCs in the organisation and 86.94% have access to the Internet, only a very small group (5.97%) had used the Internet for more than 10 years (or 'leaders'). Most of them had used it between 5-10 years (28.73%, 'early majority') and 3-5 years (26.87%, 'late majority'). Quite a proportion (19.03%) just started using it within the last 3 years (or 'laggards'). This classification of adopter is based on diffusion theory [18:261-263, 19]. It seems, the leaders are usually those who (i) are longer established, (ii) have more staff, and (iii) manage more money. See parameter estimation in Table **1**. While this may contradict what diffusion theory suggests that 'earlier adopters are not different from later adopters in age' and disagree with the view that 'economic factors do not explain comprehensively innovation behaviour', it supports the idea that 'early adopters usually are larger in units' [19:288-289].

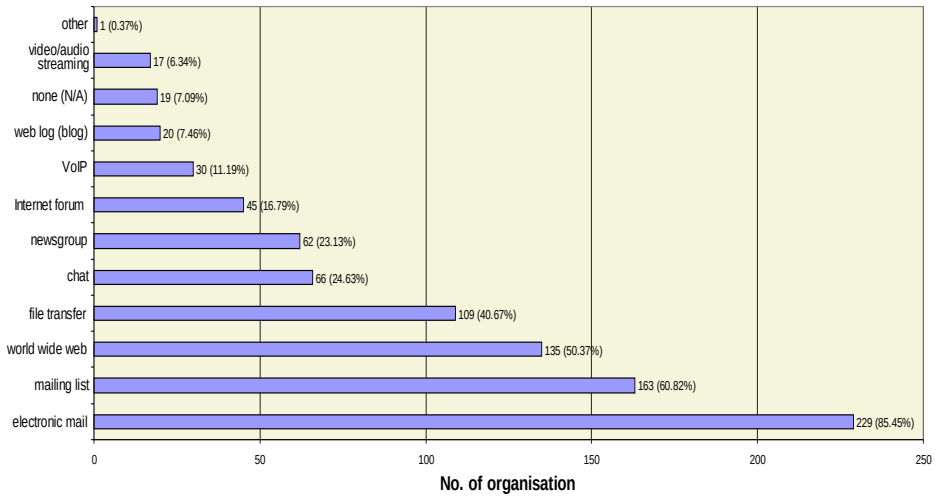
Table 1 Characteristics of Indonesian VOs as adopter

Estimated Variables	Late majority and laggards (75.56%)	Leaders and early majority (24.44%)
Period of Internet use (years)	<3; 3-5	5-10; >10
Age of the organisation (years)	0-1; 1-2; 2-5; 5-8; 8-10	>10
Number of staff (persons)	<5; 6-10; 11-15	16-20; 21-25; >25
Annual turn over (IDR)	<100 million; 100-500 million	500 million - 1billion; 1-2 billion; >2 billion

N=268. Latent Class Analysis. BIC(LL)=1816.7598; NPar=42; L^2=1096.296; df=179; p<0.0001; and Class.Err=3.9%. This table also appears in [108, 109]

Email seemed to be the most popular application before mailing list, world-wide web and file transfer.

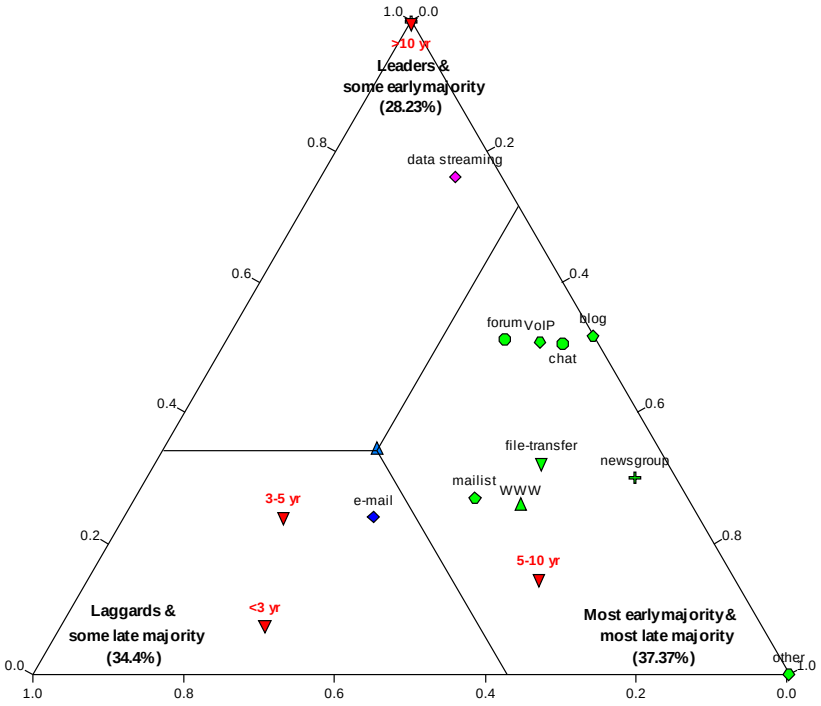
Figure 4 Internet application used by Indonesian VOs



N=268; multiple responses allowed

It is also estimated that particular Internet technologies may characterise certain adopter categories: (1) The use of Internet applications which are simple, typically asynchronous, and can run independently over narrow-band, low-speed connection like standalone e-mail client applications are likely to be identified with laggards and some late majority; (2) In contrast, applications that are more complicated, usually synchronous, and necessitate a certain platform (e.g. browser) to run over broad-band, high-speed connection like audio/video streaming are estimated to be associated with leaders and some early majority; and (3) any other applications seem to ascribe the majority. This estimation in fact also indicates the sequence in the Internet adoption in the universe of Indonesian VOs. Firstly, stand-alone, asynchronous Internet applications, which can run over low-speed internet links are likely to be the ones which are adopted earlier. E-mail is an example of this. Mailing-list is next as it is in the same level of complexity as e-mail. Abundant examples have been demonstrated above. Then, once higher familiarity and literacy are achieved, applications running over the web platform are adopted to satisfy the increasing need of the organisation. This could be simply web-based applications like file transfer, newsgroup, web-log or forum, or more synchronous CMS like chat and VoIP (voice-over internet protocol). Lastly, when high-speed access is available and the Internet literacy is adequate, complex, highly synchronous applications like audio/video data stream are used. But often this is hindered by the capacity of the organisations to afford using such applications. See Figure 5.

Figure 5 Parameter estimation: Internet application used by each category



N=268; Latent class analysis. BIC(LL)=2024.3602; NPar=90; L^2=983.6697; df=131; p<0.0001 and Class.Err=4.35%.

In hindsight, this sequence might be very difficult to pinpoint especially in a context where access to technology is not a problem. In such a case, it is not because there is no sequence of adoption, but because better access to technology levels the hierarchy and order, and makes the sequence smoother. The study argues, therefore, that in a circumstance where access to the technology is still a problem (e.g. unequal, unaffordable access, such as observed in this research), hierarchy and sequence of adoption are more salient.

4.2. Technological substitution or complement?

In order to assess the VOs' view about the Internet as technological substation, the respondents were asked to rank the ways they have benefited from using the Internet in the survey.

Table 2 Technological substitution of the Internet adoption

In what way has your organisation benefited from its use of the Internet?	*Score*	*How the Internet is perceived as technological substitution. As …*
Building wider network with other organisation	1067	Apparatus for building network
More effective management of organisation (back-office & internal communication)	970	Organisational management tool
Cost saving in general	852	Advanced communication technology
Better publication/communication of idea with public/other organisation	850	Publication media, Public relation tool
Collaborative project with other organisation(s)	765	Advanced collaborative instrument
Fund-raising, including networking with donor	685	New way for fundraising
Campaign/Opinion building	574	Means for campaigning and opinion building
Other	41	

N=268; score is calculated by multiplying the number of response for each item with relative weigh of the item.

The survey result is corroborated by the interview analysis to map several areas where the Internet could be, and has been, seen as technological substitution [114, 115, 116] to serve different purposes of VOs:

1. The Internet is seen as *advancement of technology in communication* which has the potential to lower communications costs and activities associated with it. The technology helps Indonesian VOs to communicate more economically with partners and to customise the delivery of ideas to the general public, mass media, or groups of beneficiaries. Here, the Internet can also be seen as tool for *public relations*.
2. Indonesian VOs use the Internet as an *organisational management tool* to help run and manage the organisations through online staff meetings, scheduling and calendar and documentation. Some VOs are now considering integrating other services such as online banking, online public-relations and even online volunteer or staff recruitment – at least when the necessary technology has been adopted more properly.
3. The Internet is perceived as the latest generation of *publication media*. A large number of Indonesian VOs now use the Internet for publication purposes instead of using printed media. This means printing and distribution costs are sharply reduced and the coverage enabled by using such e-media is beyond what traditional media could reach.
4. The Internet is used by Indonesian VOs as *means of campaigning and opinion building* on many issues: from government policy, democratisation issues, political participation, to consumers' interest on ethical, fair-traded and sustainably produced

goods and services. This effectively attracts support not only from other VOs overseas, but also because such campaigns can be easily picked up by the media.

5. The Internet is seen as the most sophisticated apparatus for *building networks*, particularly because it increases visibility of organisations and makes contact among parties much easier. It is evident that networks of VOs have increased dramatically since the use of the Internet [this has been explored particularly in 117].

6. Consequently, Indonesian VOs considers the Internet as advanced *collaborative instrument* and has made collaboration easy, as not only information and other resources can be shared over the net, but so can the responsibility and work division.

7. Lastly, the Internet is perceived to provide a new way for *fund-raising* as it has significant potential to mobilise public support (both action and financial) and to boost the organisational profile (e.g. by putting the organisations' portfolio online) to attract new sponsors or donors.

The findings suggest that the Internet is basically seen as a step up from telephones and previous communication technologies, whose impact reduces to an 'economy of presence' which Mitchell recalls in his *E-topia* [118], defined by technological substitution or complementary effects on personal interaction. However, along this logic, in a most exaggerated and simplistic version, presumably advances in Internet technology (including computers and electronic communications) would substitute for all form of personal interaction and obviate the need for travel [119], which is very unlikely. This is because electronic communication (as facilitated by the advancement of the Internet technology) and face-to-face, real interaction is very likely to be a *complement*, instead of a *substitute*. This has not only some conceptual grounds [as, in different context, theorised by 119, 118, 120] but also an empirical basis, as explored in this study: *none* of the interviewed VOs, while admitting the capability of the Internet to facilitate network of movement in a way that never happened before, believed that the technology will fully ever replace direct, face-to-face communication and coordination.

4.3. Diffusion stages revisited

The study now revisits the five stages of diffusion as suggested by Rogers [19] and sees if the theory helps in explaining the empirical evidence.

Stage One: Awareness building. The findings about the adopter characteristics above are in accord with Rogers' suggestion that the process begins with the stage when decision-making unit "is exposed to an innovation's existence and gains an understanding of how it functions" [19:171]. They reflect on the active process of the organisations to search for comprehension of the technology. The use of the technology is not driven by a compulsive reaction toward advancement of technology, but by their growing needs and the context in which they operate. In other words, what characterises this first stage is something closer to 'building awareness', rather than 'acquisition of knowledge', of an innovation. Building awareness implies more active actions, whereas knowledge acquisition is more closely related to passive reactions, of the actor when they are confronted with an innovation. This stage shows how VOs build their awareness: putting the use, and the needs of using the technology, within the context of organisations' principles and values; issues and concerns; and missions and goals. It further pushes the

organisations to be aware of the non-technological aspects of the innovation that may hinder the adoption, such as availability of access and cost of use.

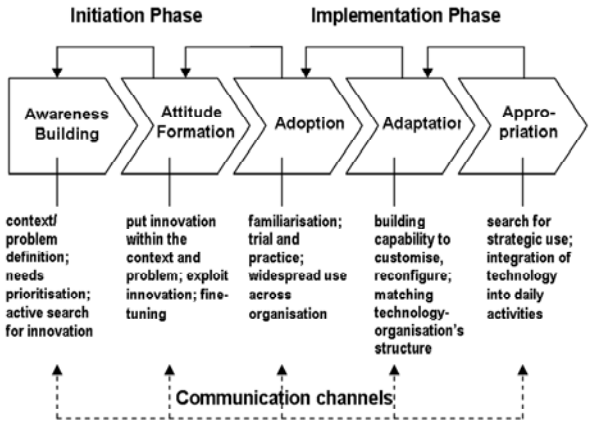
Stage Two: Attitude formation. The discussion on the perceived characteristics of the Internet as an innovation that substitutes and complements existing technologies confirms that the potential adopter "forms a favourable or unfavourable attitude toward the innovation" [19:174]. At this stage, Indonesian VOs become more involved with the Internet in a more selective perception as the general perception about the Internet itself is developed: the Internet is perceived to increase the effectiveness and efficiency of the organisations' work. This is the stage where VOs form their own attitude towards the technology: not only do they fine-tune themselves with the technological characteristics of the Internet, but they also exploit the technological features of the Internet and use it to meet their needs. Rogers stresses that the stage of persuasion is equivalent to attitude formation and change, but not necessarily in the direction intended by some particular source, such as a change agent [19:175]. This observation, however, suggests otherwise: the second stage is more one of attitude formation, rather than of persuasion, because the way the innovation's attributes are perceived follows a certain direction intended by VOs themselves. In other words, VOs form their own organisational attitudes in using the Internet.

Stage Three: Adoption. This study cannot confirm if the decision stage, as theorised, exists in this case. The survey finds that 13.06% of observed VOs do not use the Internet, but it is not because they reject the technology. Rather, it is because of the unavailability of infrastructure, the lack of financial resource, and –where the previous two are not a problem—the absence of Internet providers and lack of capacity (knowledge and skill). It seems that instead of having a *decision* stage as suggested by Rogers, the third stage is the *adoption* itself. The *trial* is important in this stage as it does not serve as a 'test' of the innovation as suggested by the theory, but rather as '*practice*', i.e. familiarisation of the technology, with some customisation to meet the needs of the organisation. Another explanation lies in the nature of the Internet technology itself. Some other innovations cannot be divided for trial and so they must be adopted or rejected *in toto* ('in its entirely'), which is not the case with the Internet. Different VOs use different technology according to their needs, some at a smaller and some at a larger scale. This scalable trial is often an important part in the adoption [19:177] and is proven to be significant during this stage.

Stage Four: Adaptation. Instead of 'implementation' as theorised, what characterises this stage is *adaptation*. Rogers' notion of implementation, in a way, can be understood as a 'fit-in' mechanism, i.e. using the technology –in the way it is intentionally designed for (or 'according to standard')—to satisfy the needs of the organisation. This can be seen as though the 'solution' lies in the artefacts of technological innovation which then answers the 'problem' that organisations have [19:179, 60:39-41]. This notion is, however, different to what this study has observed. Instead of fitting-in, VOs *adapt* the Internet according to the organisations' needs. VOs *reconfigure* the Internet in the sense that they arrange and rearrange the setting of the technology that allow for furtherance and elaboration of the organisation's goals, strategies and activities. In other words, VOs build their *configurational capability* in adapting the innovation. The integration of the technology into the organisations' works takes time. Having less control in hardware acquisition, access to the Internet and slightly more control in software selection have, to some extent, caused VOs to work hard in the configuration.

Stage Five: Appropriation. Instead of confirmation, the last stage in the innovation-decision process in this case is *appropriation*. After adaptation stage, additional effort is required to further customise the technology so that it addresses the specific, more long-run needs of the organisation. This is what VOs term as 'strategic use', i.e. where VOs use the technology for their own purposes, utilising it to achieve their own objectives and make it their own. The typical examples in the study are uploading local content on the web in local languages (e.g. for communication with a local network, beneficiaries or local media), and/or specific application which is designed for a specific need (e.g. publication, campaign, opinion building, among others). At this stage, VOs use the Internet for creating political and social impact, i.e. a 'platform' for organising strategic and political activities. There are five identified areas of activism in which the Internet has been strategically used by Indonesian VOs: collaboration, mobilisation, empowerment and development, research and publication, and advocacy and monitoring [121:230, 109, 122]. This stage is the ideal condition where the Internet is addressed strategically towards VOs' need for movement, development and networks.

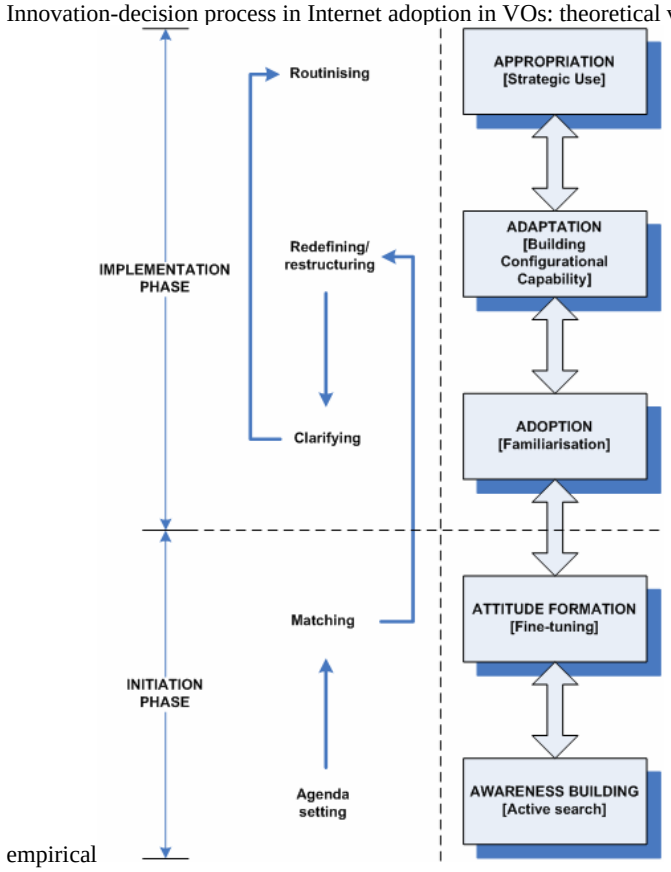
Figure 6 Stages of adoption and implementation of Internet in Indonesian VOs



Source: Empirical observation, informed by Rogers [18, 19]

What has been presented here is basically a revisit, or modification, of Rogers' [19] diffusion stages based on the empirical observation of Indonesian VOs adopting the Internet. The empirical stages suggested above, however, are not linear in practice. At any stage, VOs may reverse the decision and/or return to previous stages according to the particular circumstances in which they work. This also suggests that different organisations operating in different environments (as is the case with such a wide range of VOs) will influence the management of innovations they adopt. These differences are the result of an adaptive process, i.e. that procedures related to the use of technology in an organisation is a result of the adaptation process because they are perceived to work better than the 'standard prescription' of using the artefacts.

Figure 7 Innovation-decision process in Internet adoption in VOs: theoretical vs.



Left: Rogers' stages of innovation-decision process [19],
Right: stages based on empirical observation

This can also be understood from an adaptive structuration perspective [31] which suggests that an organisation's institutional features and perceptions (toward technology) substantially mediates the adoption of innovations on work process and performance. With the contextual organisation's culture, innovations are modified and adapted to bring them into alignment with the organisation's routines, including their belief system [31, quoted in 123:438]. Thus, when innovations are in use, they are not in their 'fixed' formation, but rather 'constituted and reconstituted' through the everyday practices of particular organisations using particular technology in particular circumstances [33:425]. The adoption and use of innovation is a continuous practice, i.e. consisting of recurrent stages of 'awareness building', 'attitude formation', 'adoption', 'adaptation' and 'appropriation' as explained above.

This perspective may help to explain how as the need for VOs to transform society increases, they are also urged to change from their roles as passive users of the Internet (recipient) into active participants, because the Internet has increasingly become an integrated part of that society. The Internet is comparable with other major 'epoch-making' inventions like the automobile or the telephone, which has the power to transform "not only the context in which the user lives but also the user itself" [60]. This

has laid the foundation for VOs not only to adopt, but to appropriate the Internet to achieve their missions and goals and further their agenda.

4.4. Internet adoption: Evolutionary or revolutionary?

The question of whether the Internet is viewed as 'technological substitution' or, in contrast, as a 'centre of socioeconomic progress' has been long rooted in the distinction between 'evolutionary' and 'revolutionary' views of technology [124]. The *evolutionary perspective* sees a series of technological improvements in a specific trajectory, like the famous example of mobile phones being the latest generation since Graham Bell's telephone. Internet, in this view, is a continuation of communication technology. Meanwhile, the *revolutionary approach*, which believes that technological progress is at the core of socioeconomic paradigm, conceives that the effects of the Internet (and other ICT) are not specific to a sector of the economy, but presumably to all sectors because of the technological superiority of their communication, data processing, storage, retrieval, manipulation and organisation of digital information [119, 124].

The empirical evidence on how Indonesian VOs adopt the Internet as technological substitution, are actually instances of the evolutionary perspective. To recall, the Internet has enabled impressive technological advances in communication, which have the potential to significantly reduce communications cost and all endeavours related to it. However, as shown above, at the empirical level, the substitution effect of the Internet might not be fully realised, in part because access to technology is still problematic and to some extent because of context-specific aspects that impede the technology from full exploitation. Meanwhile, in a revolutionary perspective, technological artefacts like the Internet, together with its corresponding knowledge (e.g. applications and contents) and physical infrastructure (e.g., connection line, network access) are seen as an integral part of "both a technological and organisational revolution transforming all types of organisations, be they corporate, public, or civic" [119:122]. It is also within this argument that those all happen because the Internet has altered relationships within and between organisations as an agent of change [e.g. 125, 126, 127]. This revolutionary view seems to have stemmed from discourses concerning IT in society [128]. This shift is thought to be as historical as the Industrial Revolution in terms of its far and wide effects on society [119].

Indonesian VOs also embrace this revolutionary perspective, which reflect their understanding that the Internet has revolutionary characteristics which can transform not only the organisations role in the society, but also to bring transformation to the society itself. The adoption and use of the technology has the potential to radically transform their role in social change within the country by enabling them to be a knowledgeable and networked agent of change. However, the adoption seems to have followed the evolutionary path as explored in the previous section.

4.5. Constituting Internet use and reshaping voluntary activism landscape: Two layers of social system

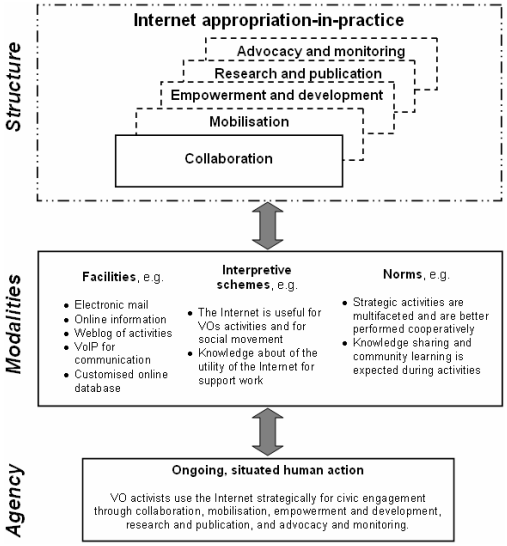
Interviews and workshops revealed that the use of the Internet in VOs is essentially a recursive process. The use of the Internet has become constituted in the organisations: it is an enactment of a 'technology-in-use' structure [31, 33]. The examples from the

workshops and interviews are abundant [particularly reported in 122]. The uses of email, mailing lists, WWW, simple blogs, chat rooms are all instances of enactments of a 'technology-in-practice':

> it is not just a direct output of technology use, but with technology and its use continuously shifting and being shaped, it is more about process than outcome. Innovations are adopted and continuously modified and adapted to bring them into alignment with the organisations' routines [31, quoted in 123:438].

Appropriation of technological innovation in organisations is 'always-in-practice' (emergent), rather than fixed [33].

Figure 8 Appropriating the Internet for voluntary engagement: A structuration perspective

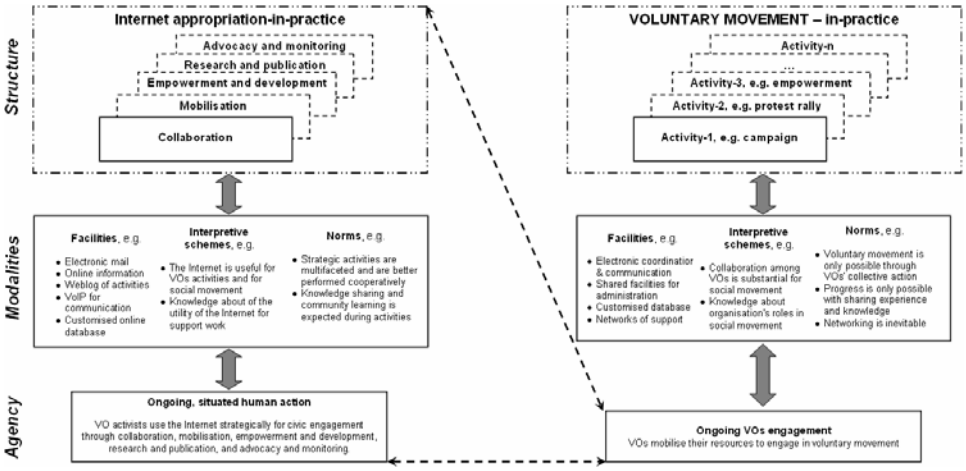


Source: Empirical observation and modification of AST [33]

The way VOs interact with the Internet enacts other social structures along with the technology-in-practice. The use of email has become standard for coordinating rallies; posting information or sharing experience. The use of mailing lists has become common practice for advocacy work. These were among examples often referred to by the participants in the workshops and interview respondents. In their recurrent and situated action in using the Internet, VOs thus draw on previously enacted structures and reconstitute those structures. Such reconstitution may be either *deliberate* (like using emails or mailing lists for communication or WWW for searching information), or, as is more usual, *inadvertent* (such as when email communication becomes routinised), as Orlikowski suggests [33]. When reflecting on how the use of the Internet has had an impact on the reshaping of socio-political life in Indonesia, the discussion about the *nested* and overlapping *structure* of Internet use [33:411] occurred across the workshops [122]. All VOs participating in this study agreed that they experience at least two 'layers' of social systems when they use the technology. Firstly in their own individual VO (intra-organisational level) where staff or activists' interaction with the Internet is structured [32, 33]. Secondly, the voluntary movement in Indonesia as another social system (inter-

organisational level) where interactions among VOs are also structured and constituted [44, 129, 49, 48].

Figure 9 VOs and voluntary movement: A structuration perspective



Source: Empirical fieldwork and modification of AST [33]

At the intra-organisational level, where technology is both a product of and a medium for human action [as theorised by 31, 32, 33], Indonesian VOs in the workshops acknowledged that the institutional properties of VO, like values, issues, concerns and perspectives have both influenced and are influenced by how staff and activists use the Internet. However, because the use of the technology has become routinised, often they are not aware of this two-way process (which, in some instances, was only revealed during the workshop discussions). The notion reflected across the workshops was that the influence of Internet use on VOs' identity, coherence and cohesion also affects what happens at the inter-organisational level [122]. Join actions and collaborations among VOs are also both a product of and a medium for a VO's activities [as suggested by 130, 131]. For example, in the Indonesian voluntary movement, institutional properties of the movement such as orientation, strategic targets, or lines of thought, have influenced how an individual VO joins the action, but at the same time the way VOs collaborate with each other also influences the movement [as also identified by 132, 133]. The workshops reflected that the use of the Internet has contributed, in part, to the changing roles of Indonesian VOs, which, as a result, reshapes the socio-political life of the country. The use of the Internet has clearly contributed to the changing relationship, not only between Indonesian VOs and their 'audiences' or 'beneficiaries', but also among themselves [122]. In this way, VOs as social movement actors are strengthened and voluntary communities are empowered. As shown by the collective reflections here, this is an important factor in the shaping and reshaping of socio-political life in Indonesia today.

It is important here to distinguish between intra- and inter-organisational levels, at least on an analytical level, to understand the implication of Internet use in VOs. But it is also just as important to make a distinction between the intended and unintended nature of the implication [as suggested by 33:411]. There are at least two empirical reasons suggested during the workshops. First, VO's staff or activists are always potentially able to change their habitual use as their experience also changes in using the Internet. In this

way, both their experience and the way they use the technology are changed by each other. Second, in voluntary movements, similarly, any organisation has the potential to change the way in which they participate in the movement over time. In this way, both the movement and the individual organisations are changed by each other. Evidence for these two reasons was in abundance during the workshops and certainly enriched theories about how collaboration and join action mediate and are mediated by individual VOs works, especially when they become connected globally [134, 129, 48, 49].

This discussion recalls the idea about the different nature of the consequences (intended or unintended) of technological use in organisations: *processual, technological* and *structural* [33]. Processual consequences refer to changes in the execution and outcome of users' work practices; technological consequences are about changes in the technological properties available to the users; and structural consequences involve changes in structures that users enact as part of the larger social system in which they are participating [33:421]. In the case of Indonesian VOs using the Internet, processual and technological consequences are more apparent at intra-organisational level while structural consequences are more salient at inter-organisational level. The Internet and its use in Indonesian VOs cannot be seen as homogenous, and neither can other innovations. In many developing economies where voluntary movement is likely to be fragmented [for Indonesia, see 95], the challenge is to appropriate technology not only to achieve strategic goals, but also to strengthen the movement itself. This is likely also the case with the adoption of any other innovations in VOs.

5. Conclusion

Throughout this paper, it is argued that the adoption of technological innovations like the Internet in VOs has its own story and explaining it is far from explaining a 'black box'. Consequently, it is also not anywhere near to the assumption of an 'automated' process, i.e. when the innovation 'is there', these organisations 'will just use it' no matter what. This study suggests that adoption and implementation of innovations in VOs, to some extent, follows a different trajectory than in other types of organisation. This is central to the analysis because research into adoption and use of technological innovation like the Internet in organisations has been mostly informed by evidence from organisations other than VOs [76, 135] and thus has created a different analytical lens when analysing the interaction between the innovation and organisations.

The Indonesian case presented here shows that it is more likely that VOs adopt innovations for more strategic purposes like collaboration and networking, rather than just catching up with the latest innovation. Such adoption and implementation of innovation is instrumental factor in the VO's engagement within the voluntary movement. Adoption of innovations (the Internet in this case) can be central to the development of VO's strategy in managing resources as it fundamentally alters the coordination and management of most organisational works. Adoption of innovation in VOs has created a significant impact not only at an analytical level but also at a practical level in which it plays a significant role in forming new strategies to undertake activities. From the Indonesian case presented here, these strategies have been substantial for VOs who today have pivotal positions in the social, economic and political landscape across the country at an unprecedented scale [93, 81, 82, 90]. Either for improving people's

livelihoods, fighting for social justice, promoting human rights, widening public participation in policy making, or fostering democratisation, Indonesian VOs have developed new strategies stemming from their adoption of innovations. This, too, has enriched the way they interact with many actors in society: state bodies (e.g. to influence policy making process with regard to development programmes or democracy), multi-national institutions like the UN or development institutions (e.g. to communicate or report cases), business firms (e.g. to push social responsibility issues), beneficiary groups (e.g. to empower, build capacity, mobilise). As a result, today, the voluntary sector is much stonger than it was in the past, when it was relatively weak, depoliticised and fragmented.

With the distinction between evolutionary and revolutionary views of technological innovation taken into account, in the VO universe, although the advent of many technological innovations is considered to be revolutionary in that it fundamentally empowers the role of voluntary sectors, the adoption of it in VOs seems to follow an evolutionary path. The study shows that the substitution effect of technological innovation might not be fully realised when availability and access become problems. Using new innovations, like the Internet in this case, does not mean replacing 'older' technologies or even direct interaction which is central to many VO activities. Here using technology and adopting technological innovation is only secondary to physical interaction and engagement. In the voluntary sector, new activism created by new technological innovations can indeed be instrumental, but the real social change takes place in the 'off-line' realm.

Learning from the case, this paper argues that adoption and implementation of innovation is never a straightforward process or a direct application of any implementation formulae. Rather, because it is viewed as a strategic use that serves a dynamic strategic purpose of voluntary groups and communities, it is highly dynamic in nature. In the very context of the voluntary sector and VOs, the idea of adoption and use of innovation revolves around the idea of integration of the innovation into organisational strategy. This account is central to understand the 'institutionalisation' of innovation adoption or use in organisation, i.e. where organisation familiarises itself with the innovation by putting it into organisational routines [as defined by 32:23-27]. This lays the foundations for an ongoing and emergent process of integrating the innovation into the organisation. For VOs (as instantiated here), the essence of innovation adoption is 'strategic use'. It is more than just about applying a certain technological innovation for a particular purpose, but more importantly it is about using it in a strategic and political way to support the strategic and political work of voluntary sector [as also suggested by 136, 129]. However, it should be noted, that the strategic realm of voluntary movement actually stems from the 'traditional strengths' of the voluntary sector, like pertinent issues and concerns, tactical social and political orientation, and distinctive activities [40, 41]. Adopting innovation does strengthen these and make potencies more realisable, but never really replaces them.

Acknowledgement

Ian Miles and Lawrence Green supervised the research. Gindo Tampubolon was the methodological advisor and introduced MIMIC-LCA. Ronnie Ramlogan commented the draft and Kathryn Morrison read the text and corrected the language. The research was

jointly funded by FES Germany, SP The Netherlands, BNV Switzerland, JP2100S Vatican, and the University of Manchester, UK.

References and Notes

1 Edwards, M. and Hulme, D. (Editors) (1992), *Making a Difference: NGOs and Development in a Changing World*, Vol., London: Earthscan Publications.

2 WB (2003), "Sustainable Development in a Dynamic World," *World Development Report*, New York: The World Bank.

3 Edwards, M. and Sen, G. (2000) *NGOs, social change and the transformation of human relationships: a 21st-century civic agenda*, Third World Quarterly, Vol. 21, No. 4, pp. 605 - 616.

4 Glasius, M., Kaldor, M., Anheier, H. and Holland, F. (Editors) (2005), *Global Civil Society Yearbook 2005-2006*, Vol., London: Sage.

5 UN (2006), "The Millennium Development Goals Report 2006," New York: United Nations.

6 Fowler, A. (2000) *NGDOs as a moment in history: beyond aid to social entrepreneurship or civic innovation?*, *Third World Quarterly*, Vol. *21*, No. 4, pp. 637-654.

7 Raynolds, L.T. (2000) *Re-embedding global agriculture: The international organic and fair trade movements*, Agriculture and Human Values, Vol. 17, No. 3, pp. 297-309.

8 --- (2002) *Consumer/Producer Links in Fair Trade Coffee Networks*, Sociologia Ruralis, Vol. 42, No. 4, pp. 404–424.

9 Guay, T., Doh, J.P. and Sinclair, G. (2004) *Non-Governmental Organizations, Shareholder Activism, and Socially Responsible Investments: Ethical, Strategic, and Governance Implications*, Journal of Business Ethics, Vol. 52, No. 1, pp. 125-139.

10 Sparkes, R. (2001) *Ethical investment: whose ethics, which investment?*, Business Ethics: A European Review, Vol. 10, No. 3, pp. 194–205.

11 Doh, J.P. and Guay, T. (2006) *Corporate Social Responsibility, Public Policy, and NGO Activism in Europe and the United States: An Institutional-Stakeholder Perspective*, Journal of Management Studies, Vol. 43, No. 1, pp. 47–73.

12 Schepers, D.H. (2006) *The Impact of NGO Network Conflict on the Corporate Social Responsibility Strategies of Multinational Corporations*, Business & Society, Vol. 45, No. 3, pp. 282-299.

13 Moulaert, F., Martinelli, F., Swyngedouw, E. and González, S. (2005) *Towards alternative model(s) of local innovation*, Urban Studies, Vol. 42, No. 11, pp. 1969-1990.

14 Kendall, J. and Knapp, M. (2000) *Measuring the performance of voluntary organizations*, Public Management, Vol. 2, No. 1, pp. 105-132.

15 Schumpeter, J. (1934) *The Theory of Economic Development*, Cambridge, MA: Harvard University Press.

16 Fagerberg, J. (2005) "Innovation: A Guide to the Literature," in *The Oxford Handbook of Innovation*, J. Fagerberg, R.R. Nelson and D.C. Mowery (Editors), Oxford: Oxford University Press, pp. 1-27.

17 Kay, J. (1993) *Foundations of Corporate Success: How Business Strategies Add Value*, Oxford: Oxford University Press.

18 Rogers, E.M. (1995) *Diffusion of Innovations* New York: Free Press. Fourth Edition.

19 --- (2003) *Diffusion of Innovations*, New York, NY: Free Press. Fifth Edition.

20 Wejnert, B. (2002) *Integrating Models of Diffusion of Innovations: A Conceptual Framework*, Annual Review of Sociology, Vol. 28, pp. 297-326.

21 Frambach, R.T. (1993) *An Integrated Model of Organisational Adoption and Diffusion of Innovations*, European Journal of Marketing, Vol. 27, No. 5, pp. 22-41.
22 Burns, T. and Stalker, G. (1961) *The Management of Innovation*, London: Tavistock.
23 Kanter, R. (1988) *When a thousand flowers bloom: Structural, collective and social conditions for innovation in organisations*, Research in Organizational Behaviour, Vol. 10, pp. 169-211.
24 Freeman, C. and Soete, L. (1997) *The Economics of Industrial Innovation*, London and Washington: Pinter.
25 Coombs, R. and Miles, I. (1999) "Innovation, Measurement and Services: The New Problematique," in *Innovation Systems in the Service Economy: Measurement & Case Study Analysis*, J.S. Metcalfe and I. Miles (Editors), London: Kluwer Academic Publishers, pp. 85-103.
26 Metcalfe, J.S. and Miles, I. (Editors) (1999), *Innovation Systems in the Service Economy: Measurement & Case Study Analysis*, Vol., London: Kluwer Academic Publishers.
27 Miles, I. (2005) "Innovation in Services," in *The Oxford Handbook of Innovation*, J. Fagerberg, R.R. Nelson and D.C. Mowery (Editors), Oxford: Oxford University Press, pp. 433-458.
28 Dunleavy, P. (2006), "Achieving innovation in central government organisations," N.A.O. (NAO) (Editor), London: LSE's Public Policy Group.
29 Halvorsen, T., Hauknes, J., Miles, I. and Røste, R. (2005), "Innovation in the Public Sector. On the differences between public and private sector innovation," *Publin Report No. D9*, Oslo: NIFU STEP, pp. 22-39.
30 Silverstein, D., DeCarlo, N. and Slocum, M. (2005) *INsourcing Innovation: How to Transform Business as Usual into Business as Exceptional*, Longmont, CO: Breakthrough Performance Press.
31 DeSanctis, G. and Poole, M.S. (1994) *Capturing the Complexity in Advanced Technology Use: Adaptive Structuration Theory*, Organization Science, Vol. 5, No. 2, pp. 121-147.
32 Orlikowski, W.J. (1992) *The duality of technology: Rethinking the concept of technology in organizations*, Organization Science, Vol. 3, No. 3, pp. 398-427.
33 --- (2000) *Using technology and constituting structures: A practice lens for studying technology in organisations*, Organization Science, Vol. 11, No. 4, pp. 404-428.
34 --- (2002) *Knowing in practice: Enacting a collective capability in distributed organising*, Organization Science, Vol. 13, No. 3, pp. 249-273.
35 Giddens, A. (1984) *The Constitution of Society: Outline of the Theory of Structuration*, Berkeley: University of California Press.
36 Chesbrough, H.W. (2003) *Open Innovation: The New Imperative for Creating and Profiting from Technology*, Boston, MA: Harvard Business School Press.
37 Davila, T., Epstein, M.J. and Shelton, R. (2006) *Making Innovation Work: How to Manage It, Measure It, and Profit from It*, Upper Saddle River: Wharton School Publishing.
38 Ettlie, J. (2006) *Managing Innovation*, Butterworth-Heineman: Elsevier.
39 Lundvall, B. (1992) *National Systems of Innovation. Towards a Theory of Innovation and Interactive Learning*, London: Pinter.
40 Deakin, N. (2001) *In search of civil society*, New York: Palgrave.
41 Keane, J. (1998) *Civil society: Old images, new visions*, Stanford: Stanford University Press.
42 Anheier, H.K., Carlson, L. and Kendall, J. (2002) "Third sector policy at the crossroads: Continuity and change in the world of nonprofit organizations," in *Third Sector Policy at the Crossroads. An international nonprofit analysis*, H.K. Anheier and J. Kendall (Editors), London: Routledge, pp. 1-16.

43 Anheier, H.K., Glasius, M. and Kaldor, M. (2001) "Introducing Global Civil Society," in *Global Civil Society Yearbook 2001*, H. Anheier, M. Glasius, M. Kaldor, D. Osgood, F. Pinter and Y. Said (Editors), London: Oxford University Press.

44 Anheier, H.K. (2003) "Measuring Global Civil Society," in *Global Civil Society Yearbook 2003*, H. Anheier, M. Kaldor and M. Glasius (Editors), London: SAGE, pp. 221-230.

45 Edwards, M. (2004) *Civil Society*, Cambridge: Polity Press.

46 Hajnal, P. (2002) *Civil Society in the Information Age*, Hampshire: Ashgate.

47 Hall, J.A. (1995) *In search of civil society: Theory, history, comparison*, Cambridge: Polity.

48 Kaldor, M. (2003) *Global Civil Society*, Cambridge: Polity Press.

49 Wainwright, H. (2005) "Civil society, Democracy and Power. Global Connections," in *Global Civil Society Yearbook 2004/5*, H. Anheier, M. Glasius and M. Kaldor (Editors), London: SAGE, pp. 94-121.

50 Blumer, H. (1951) "Collective Behavior," in *New Outline of the Principles of Sociology*, A.M. Lee (Editor), New York: Barnes and Noble, pp. 166-222.

51 Edwards, M. and Hulme, D. (1997) *NGOs, States and Donors. Too Close for Comfort?*, London: The Save the Children Fund

52 Glasius, M., Kaldor, M. and Anheier, H. (Editors) (2002), *Global Civil Society Yearbook 2002*, Vol., New York: Oxford University Press.

53 Edwards, M. and Hulme, D. (1995) "NGO Performance and Accountability. Introduction and Overview," in *Beyond the Magic Bullet. Non-Governmental Organizations – Performance and Accountability*, M. Edwards and D. Hulme (Editors), London: Earthscan. , pp. 3 – 16

54 Petras, J. (1997) *Imperialism and NGOs in Latin America*, Monthly Review, Vol. 49, No. 7, pp. 10-27.

55 Abbate, J. (1999) *Inventing the Internet*, Cambridge, MA: MIT Press.

56 Naughton, J. (1999) *A brief history of the future: The origins of the Internet*, London: Weidenfield and Nicolson.

57 Castells, M. (2001) *The Internet galaxy: Reflections on the Internet, business, and society*, New York: Oxford University Press.

58 Internet World Stats (2007), "Internet usage and population statistics," http://www.internetworldstats.com/stats.htm, visited July 2007.

59 eTForecasts (2007), "World usage patterns & demographics," www.etcnewmedia.com/review/default.asp?SectionID=10, visited July 2007.

60 Graham, G. (1999) *The Internet: A Philosophical inquiry*, London: Routledge.

61 Tomlinson, R. (unknown), "The first network email," BBN, available http://openmap.bbn.com/~tomlinso/ray/firstemailframe.html, visited March 2007.

62 Berners-Lee, T. and Frischetti, M. (1999) *Weaving the Web*.

63 Wolf, G. (1995), "The curse of Xanadu," *Issue 3.06* Wired News, available at http://www.wired.com/wired/archive//3.06/xanadu_pr.html, visited June 2006.

64 Castells, M. (1997) *The Power of Identity. The Information Age – Economy, Society, and Culture – Volume II*, Oxford: Blackwell.

65 Thurlow, C., Lengel, L. and Tomic, A. (2004) *Computer Mediated Communication: Social Interaction and the Internet*, London: Sage.

66 Berry, W. (1990) *'Why I am not going to buy a computer', What are people for?*, San Francisco: North Point Press.

67 Boal, I.A. and Brook, J. (Editors) (1995), *Resisting the virtual life: The culture and politics of information*, Vol., San Francisco: City Lights.

68 Postman, N. (1993) *Technopoly: The surrender of culture to technology*, New York: Vintage Books.
69 Castells, M. (1996) *The Rise of Network Society. The Information Age – Economy, Society, and Culture – Volume I*, Oxford: Blackwell.
70 Carr, V.H. (2005), "Technology Adoption and Diffusion," Air University Center for Strategy and Technology.
71 Burkman, E. (1987) "Factors Affecting Utilization," in *Instructional technology: Foundations*, R.M. Gagne (Editor), Hillsdale, NJ: Lawrence Erlbaum.
72 Farquhar, J.F. and Surry, D.W. (1994) *Adoption analysis: An additional tool for instructional developers*, Education and Training Technology International, Vol. 31, No. 1, pp. 19-25.
73 Stockdill, S.H. and Morehouse, D.L. (1992) *Critical factors in successful adoption of technology: A checklist of TDC findings*, Educational Technology, Vol. 32, No. 1, pp. 57-58.
74 Tessmer, M. (1990) *Environmental analysis: A neglected stage of instructional design*, Educational Technology Research and Development, Vol. 38, No. 1, pp. 55-64.
75 Shumarova, E. and Swatman, P.(2006) *The Dynamics of Innovation in Electronic Networks: A System Dynamics Perspective on IT Innovation Diffusion*, 24th International Conference of the System Dynamics Society.
76 Fichman, R. (2000) "The Diffusion and Assimilation of Information Technology Innovations," in *Framing the Domains of IT Management: Projecting the Future Through the Past*, R. Zmud (Editor) Pinnaflex Publishing.
77 Giddens, A. (1979) *Central Problems in Social Theory*, London: Macmillan.
78 --- (1993) *New Rules of Sociological Method*, Cambridge: Polity Press, 2nd. Edition.
79 Billah, M.M. (1995) "Peran ornop dalam proses demokratisasi yang berkedaulatan rakyat (Roles of NGO in the people's sovereignty-oriented democratisation process)," in *Agenda LSM menyongsong tahun 2000 ([Indonesian]NGO's agenda welcoming the year 2000)*, R. Ibrahim (Editor), Jakarta: LP3ES.
80 Fakih, M. (1996) *Masyarakat sipil untuk transformasi sosial: Pergolakan ideologi LSM Indonesia (Civil society for social transformation. Ideological dispute among Indonesian NGOs)*, Yogyakarta: Pustaka Pelajar.
81 Ganie-Rochman, M. (2002) *An uphill struggle: Advocacy NGOs under Soeharto's new order*, Jakarta: Lab Sosio FISIP UI.
82 Hadiwinata, B.S. (2003) *The Politics of NGOs in Indonesia. Developing Democracy and Managing a Movement*, London, New York: Routledge Curzon.
83 Hadiz, V. (1998) *Reformasi Total? Labor After Suharto*, Indonesia, Vol. 66, pp. 109–124.
84 Hikam, M. (1999) "Non-Governmental Organisations and the empowerment of civil society," in *Indonesia: The challenge of change*, R. Baker (Editor), New York: St. Martin's Press.
85 Kalibonso, R.S. (1999) "The Gender Perspective. A Key to Democracy in Indonesia," in *Reformasi. Crisis and Change in Indonesia* A. Budiman, B. Hatley and D. Kingsbury (Editors), Clayton: Monash Asia Institute.
86 Prasetyantoko, A. (2000) *Kaum Profesional Menolak Tunduk*, Jakarta: Gramedia.
87 Sinaga, K. (1994), "NGOs in Indonesia: A study of the role of Non-Governmental Organizations in the development process ", Vol. PhD, Saarbrucken: Bielefield University.
88 Hill, D.T. (2003) *Communication for a New Democracy. Indonesia's First Online Elections*, The Pacific Review, Vol. 16, No. 4, pp. 525–548.
89 Bird, J. (1999) *Indonesia in 1998. The Pot Boils over - A Survey of Asia in 1998*, Asian Survey, Vol. 39, No. 1, pp. 27-37.

90 Uhlin, A. (1997) *Indonesia and the Third Wave of Democratisation. The Indonesian Pro-Democracy Movement in a Changing World*, Surrey: Curzon.
91 Aspinall, E. (1995) *Students and Military. Regime Fraction and Civilian Dissent in the Late Soeharto Period*, Indonesia, Vol. 59, pp. 21-24.
92 Bresnan, J. (Editor) (2005), *Indonesia: The great transition*, Vol., New York: Rowman & Littlefield.
93 Eldridge, P.J. (1995) *Non-Government Organizations and democratic participation in Indonesia* Kuala Lumpur: OUP South East Asia.
94 Lounela, A. (1999), "Development in Indonesia. Some regional and national NGOs in Indonesian democratization process: Need assessment study on Indonesian NGOs," *Kepa's reports No. 31/1999*, Helsinki: KEPA Service Centre for Development Cooperation.
95 Demos (2005) *Indonesia's post-Soeharto democracy movement*, Jakarta: Demos - The Indonesian Centre for Democracy and Human Rights Studies.
96 APJII (2003), "Statistics of APJII," APJII (Indonesian Internet Service Providers Association), http://www.apjii.or.id/dokumentasi/statistik.php?lang=en, viewed 16 February 2003.
97 --- (2007), "Statistics of APJII," APJII (Indonesian Internet Service Providers Association), http://www.apjii.or.id/dokumentasi/statistik.php?lang=ind, viewed 5 August 2008.
98 Castells, M. (1999), "Information technology, globalization and social development," *UNRISD Discussion Paper No. 114* UNRISD.
99 Wahid, F. (2003), "Faktor penentu difusi Internet di Indonesia: Sebuah model konseptual (The determining factor for internet diffusion in Indonesia: A conceptual model)," Universitas Islam Indonesia Yogyakarta.
100 Menristek RI (2006), "Warung Informasi Teknologi," Kementrian Negara Riset & Teknologi - The Ministry of Research and Technology: http://www.warintek.ristek.go.id consulted February 2007.
101 Lim, M. (2003) "The Internet, Social Networks and Reform in Indonesia," in *Contesting Media Power. Alternative Media in a Networked World* N. Couldry and J. Curran (Editors), Oxford: Rowman & Littlefield, pp. 273-288.
102 --- (2004) *Informational Terrains of Identity and Political Power: The Internet in Indonesia*, Indonesian Journal of Social and Cultural Anthropology, Vol. 27, No. 73, pp. 1-11.
103 --- (2002) *Cyber-civic Space. From Panopticon to Pandemonium?*, International Development and Planning Review, Vol. 24, No. 4, pp. 383-400.
104 --- (2004) *The polarization of identity through the Internet and the struggle for democracy in Indonesia*, Electronic Journal of Communication/La Revue Electronique de Communication, Vol. 14, No. 3-4, p. available at http://www.cios.org/www/ejc/v143toc.htm.
105 Hill, D.T. and Sen, K. (2005) *The Internet in Indonesia's New Democracy*, London and New York: Routledge.
106 Nugroho, Y. (2008), "Spreading the word, broadening perspectives: Internet, NGOs and globalisation discourse in Indonesia," *Manchester Business School Working Paper, No. 544*, Manchester: The University of Manchester.
107 Lim, M. (2006) *Cyber-Urban Activism and the Political Change in Indonesia*, EastBound, Vol. 1, No. 1, pp. http://www.eastbound.info/journal/2006-2001/.
108 Nugroho, Y. (2008), "Rural Sector Reform and Internet Adoption in NGOs: The Case of Indonesia," *Manchester Business School Working Paper, No. 536*, Manchester: The University of Manchester, available: http://www.mbs.ac.uk/research/workingpapers/.

109 --- (2008), "Adoption of the Internet in rural NGOs in Indonesia – A study on Internet appropriation for rural sector reform," *Brooks World Poverty Institute Working Paper, No. 21*, Manchester: The University of Manchester.
110 Magidson, J. and Vermunt, J. (2002) *Latent class models for clustering: A comparison with K-means*, Canadian Journal of Marketing Research, Vol. 20, pp. 36-43.
111 Vermunt, J. and Magidson, J. (2002) "Latent class cluster analysis," in *Applied latent class models*, J. Hagenaars and A. McCutcheon (Editors) Cambridge University Press, pp. 89-106.
112 MacCutcheon, A.L. (1987) *Latent Class Analysis*, London: Sage.
113 Morgan, D.L. and Kreuger, R.A. (1993) "When to use focus groups and why," in *Successful Focus Groups*, D.L. Morgan (Editor), London: Sage, pp. 3-19.
114 Fisher, J. and Pry, R. (1971) *A simple substitution model of technological change*, Technological Forecasting and Social Changes, Vol. 3, pp. 75-88.
115 Kwasnicki, W. and Kwasnicki, H. (1996) *Long Term Diffusion Factors of Technological Development: An Evolutionary Model and Case Study*, Technological Forecasting and Social Change Vol. 52, pp. 31–57.
116 Mahajan, V. and Muller, E. (1996) *Timing, Diffusion, and Substitution of Successive Generations of Technological Innovations: The IBM Mainframe Case*, Technological Forecasting and Social Change, Vol. 51, pp. 109-132.
117 Nugroho, Y. and Tampubolon, G. (2008) *Network Dynamics in the Transition to Democracy: Mapping Global Networks of Contemporary Indonesian Civil Society*, Sociological Research Online, Vol. 13, No. 5 <http://www.socresonline.org.uk/13/5/3.html>.
118 Mitchell, W.J. (2000) *E-topia*, Cambridge, MA: MIT Press.
119 Audirac, I. (2005) *Information Technology and Urban Form: Challenges to Smart Growth*, International Regional Science Review, Vol. 28, No. 2, pp. 119-145.
120 Glaeser, E.L. (1998) *Are cities dying?* , Journal of Economic Perspectives, Vol. 12, pp. 139-160.
121 Nugroho, Y. (2007), "Does the internet transform civil society? The case of civil society organisations in indonesia," *Manchester Institute of Innovation Research*, Vol. PhD., Manchester: The University of Manchester.
122 --- (2008) *Adopting technology, transforming society: The Internet and the reshaping of civil society activism in Indonesia*, International Journal of Emerging Technologies and Society, Vol. 6, No. 2, pp. 77-105.
123 Thatcher, J.B., Brower, R.S. and Mason, R.M. (2006) *Organizational Fields and the Diffusion of Information Technologies Within and Across the Nonprofit and Public Sectors - A Preliminary Theory*, The American Review of Public Administration, Vol. 36, No. 4, 437-454 (2006), Vol. 36, No. 4, pp. 437-454.
124 Freeman, C. and Perez, C. (1998) "Structural crises of adjustment, business cycles and investment behaviour.," in *Technical change and economic theory*, G. Dosi, C. Freeman, R. Nelson, G. Silverberg and L. Soete (Editors), London: Frances Pinter, pp. 38-61.
125 Coombs, R. and Hull, R. (1996) "The Politics of IT Strategy and Development in Organizations," in *Information and Communication Technologies: Visions and Realities*, W.H. Dutton (Editor), New York: Oxford University Press, pp. 159-176.
126 Coombs, R., Knights, D. and Willmott, H. (1992) *Culture, control and competition: Towards a conceptual framework for the study of information technology in organisations*, Organisation Studies, Vol. 4, No. 3, pp. 375-408.
127 Dutton, W.H. (1999) *Society on the Line: Information Politics in the Digital Age*, New York: Oxford University Press.

128 Miles, I. (1996) "The Information Society: Competing Perspectives on the Social and Economic Implication of Information and Communication Technologies," in *Information and Communication Technologies: Visions and Realities*, W.H. Dutton (Editor), New York: Oxford University Press, pp. 37-52.

129 Warkentin, C. (2001) *Reshaping World Politics. NGOs, the Internet, and Global Civil Society*, Boston: Rowman & Littlefield.

130 Crossley, N. (2002) *Making Sense of Social Movement*, Buckingham Philadelphia: Open University Press.

131 Della-Porta, D. and Diani, M. (2006) *Social Movements: An Introduction*, Oxford: Blackwell, 2nd Edition.

132 Davis, G.F., McAdam, D., Scott, W.R. and Zald, M.N. (Editors) (2005), *Social Movements and Organization Theory*, Vol., New York: Cambridge University Press.

133 Diani, M. (2003) "Social Movements, Contentious Actions and Social Networks. From Methapor to Substance?," in *Social Movements and Networks: Relational Approaches to Collective Action*, M. Diani and D. McAdam (Editors), New York: Oxford University Press, pp. 1-20.

134 Anheier, H.K., Glasius, M. and Kaldor, M. (Editors) (2001), *Global Civil Society Yearbook 2001*, Vol., New York: Oxford University Press.

135 Swanson, B. and Ramiller, N. (2004) *Innovating mindfully with Information Technology*, MIS Quarterly, Vol. 28, No. 4, pp. 553-583.

136 Surman, M. and Reilly, K. (2003), "Appropriating the Internet for Social Change. Towards the Strategic Use of Networked Technologies by Transnational Civil Society Organisations," Social Science Research Council.