Research Project

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we-DELIVER: Holistic service delivery to older people in local government through ICTs

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OPTENTIA

Sub-programme: AGeNDA - Age-Friendly Cities/Communities

1. Introduction and statement of the problem

The population of older persons is growing worldwide and consequently there will be exponential growth in their care needs (www.un.org/en/development/desa/publications/world-population-prospects-2015-revision.html). Internationally, the implications of an ageing population have been recognised in terms of its burden on governments' provision of healthcare, pension and security payments (Evans & Atim, 2011; Giles, Dailey, Sarkar & Makoni, 2007). In many Sub-Saharan countries, older persons are not a priority because government policies and strategies centre on issues such as poverty, development of service delivery and HIV/AIDS (Aboderin & Hoffman, 2015; Hontelez et al., 2011; Lloyd-Sherlock, Barrientos, Moller, & Saboia, 2012; Mathiso, 2011; South African National Treasury, 2015).

South Africa already has the highest proportion of older persons in its population in mainland sub-Saharan Africa (SSA). Of its some 52 million citizens, 4.1 million (8.2%) are aged 60 years and over. This older population is projected to increase to 5.23 million (10.5%) by 2025. Consequently, social and health care resources are under pressure – not only in South Africa, but worldwide. Governments alarmed about the escalating number of older persons are interested in the impact of care-giving in the context of information technologies. According to the literature, care is explained as a multi-dimensional construct (Abebe & Aase, 2007; Chokwe & Wright, 2012; Ray & Turkel, 2012; Van der Geest, 2002; Yeates, 2011) that is given (downward care) and received (upward care) between the generational members (Du Preez, 2014; Stockdale & Warelow, 2000). Two types of care are considered, namely physical or instrumental (tangible) and emotional (intangible) care (Pratesi, 2011; Van der Geest, 2002; Yeates, 2011). Tangible care refers to the assistance of the physical needs of an individual or to offer tangible support such as helping with mobile phones (Garcia & Bazo 2001; Muraco & Fredriksen-Goldsen, 2011), whereas intangible care is associated with feelings of empathy, concern, kindness and compassion (Watson, 2007; Roos, Silvestre & De Jager, in press).

Care needs encompass different types of care, such as:

- Health care: All basic or sophisticated medical care actions and interventions.
- Psycho-social care: Intangible care activities (e.g. support) to promote the wellbeing and quality of life of older people.
- Relational care: Effective and meaningful interpersonal contact with their peers or between generations (related or unrelated).

- Instrumental and physical care: Tangible care, such as: assistance with household chores, running errands, and so on.
- Structural care: The fair and just distribution of resources; inclusive and non-discriminatory activities and processes; and a physical environment that promotes active participation.

Care needs of people when they reach old age, differ. It depends on a combination of their unique genetic composition, adopted life styles, and psychological, social, educational and economic histories, across their lifespan. Ageing in South Africa should be contextualised against previously government enforced discriminatory practices, which included forced relocations. Given the historical legacy of racial disparities where white people were privilege over their non-white peers, the limited resources available to provide in the growing care needs of older people in general but non-white older people in particular, is a reality that concerns all levels of government. Consequently, the majority of non-white older people find themselves in places with poor infrastructure, limited resources and inferior services, unable to address their care needs. Mostly being excluded from quality education and due to the reservation of job opportunities, the majority of older people are now faced with lack of financial resources, computer literacy and literacy. Many non-white older people therefore bear a quadruple care burden: they are poor, deal with age-declining challenges, affected by migration and HIV and AIDS and illiteracy. In their old age, they need services and resources that should be accessible and continuously available to address their care needs in their local communities.

The constraints that older people face is multi-generational households (consisting of related or unrelated younger people), forming around their means tested state age pension. This pension is mainly used to sustain the livelihood of the household members and older people are often left with very little resources to provide in their own care needs. Indications are also that the relations between older people and younger people are strained and that younger people mainly address the care needs of older people through external motivating factors (Roos & Wheeler, 2016; Stols, Roos, & Hoffman, 2016).

A further constraint is that even though older people have access to mobile phones or in the rare case internet, they do not have the knowledge or skills and often a negative attitude to use them and therefore depend on younger people for assistance (Hoffman, Roos, Stols & Bohman, 2017).

Local municipalities

In 2013, South African Local Government Association (SALGA) commissioned the North-West University (NWU) to conduct a baseline assessment of the status quo of services and programmes for older people provided by local governments (Roos, Hoffman, Stols, Ferreira, Mallane, & Manganye, 2017). It was found that even though extensive legislative frameworks exist, local government was not clear of what their mandate is regarding older people. The status quo of services and programmes at that stage was:

- Local municipalities expressed uncertainty of their roles and responsibilities regarding older persons in relation to those of provincial government and its different departments. For example, the Department of Social Development and the Department of Health overlap in the provision of certain services (e.g. home-based care programmes), with the result that numerous older clients may not be identified and accidentally be left out.
- Local municipalities articulated a lack of internal, cross-sectoral coordination in terms of who is responsible for specific services/programmes for older people. For example, overlap occurs between the Department of Sports and Recreation, the Social Development Unit and the Department of Health.
- A lack of coordination and support from district municipalities to local municipalities contributes to uncertainty regarding roles and responsibilities within the local municipalities within that jurisdiction.
- Municipalities often do not know who their local older people's coordinator is.
- Information and services for older people are inaccessible because **t**he majority of municipalities had difficulty identifying the relevant person.
- Local authorities conceded that services and/or programmes for older people are not a priority within municipalities, because:
    - older persons are not seen as particularly vulnerable as they do not fall under the National Department of Women, Youth and People with Disabilities, but are integrated rather with other vulnerable groups in the social/community development division;
    - they are not detailed as a special group in the budgeting process which focuses on other priorities, such as ECDs, HIV/AIDS, youth programmes and/or small farmers;
    - there is limited budget, particularly in rural areas, to deliver specific services

and programmes to older people;
    - even though a budget may be allocated for older people, it may be used for other purposes;
    - staff shortages and insufficient human resources mean too few officers are available to implement and sustain delivery of certain programmes;
    - the portfolio of a dedicated officer responsible for addressing issues that affect older people often includes other vulnerable groups as well; and
    - attitudes of municipal officers towards older people as well as towards the special units division are often negative. In the words of one of the local government officials:

      "*I consider them (older people) to be a very bored portion of society*"
- Services to older people such as home-based care are either not provided or are discontinued during certain months of the year due to shortage of funds. These services are mostly implemented by the Expanded Public Works Programme or the Department of Social Development;
    - There is a lack of strategies to determine what services and programmes should be implemented and how;
    - A lack of awareness of the special needs of older persons a lack of formal evaluation of the impact of programmes.
- The role of NGOs in the provision of service/programmes is valued. Some municipalities provide:
    - grants-in-aid or rebates on rates for which NGOs may apply to help them to deliver services. However, the available funding is limited and is not intended exclusively for services to older persons; and
    - indirect support to NGOs in the form of venues, food or transport for older persons to attend activities arranged by the NGOs.
- A lack of coordination and collaboration between different NGOs in specific communities limits the effectiveness of service delivery in that the NGOs duplicate services.

It would be fair to conclude that the problems local governments face include uncertainty about their mandate regarding services for older people; lack of knowledge and skills about the specific needs of older people; ignorance about how to conduct a needs assessment or coordinate service provision; or how to develop and implement Information and Communication Technology (ICT) strategies to address the care needs of older people. In the feedback of the research conducted in 2013, different levels of government officials

requested training on older people's issues; clarity on their mandate, role clarification, and skills to address the need for services and resources for older people. In addition, formal and informal care services for older people are provided haphazardly by NGOs, local, provincial or national government departments. Even though some local municipalities have a dedicated focus on older people, most services are uncoordinated, duplicated, discontinued or not provided at all.

In summary, the reality of the care needs of the majority of non-white South African older people is that their basic care needs are unmet. This is due to:

- Uncoordinated service delivery; duplication of services; irregular service provision or not service provision at all. 20% of functionally impaired older South Africans in an urban setting in KZN lack all care.
- Unavailability of carers who migrated or due to HIV/AIDS-related deaths or general capacity limitations.
- Multiple limitations exist in the care that *is* provided due to limited resources and knowledge of caregivers (formal and informal).
    - lack of therapeutic, rehabilitative care skills for older people
    - lack of financial means to purchase care/assistive devices
    - limited time due to competing work/family obligations, and labour intensity of care/domestic work.

It is therefore not a question, *if* we want to preserve resources, but rather *how* to be innovative to optimize resources and to ensure sustainability.

2. Literature Review and Theoretical Framework

The introduction of ICTs in the developing world is expected to offer an essential resource for individuals in meeting the demand for care. Using ICTs to give information on services and resources for older people and to obtain their feedback fits international and national attempts to limit financial demands on social and health care systems. In this regard ICTs, and more specifically mobile technology, have been explored as a feasible alternative to address the care needs of older persons both nationally and internationally (Knodel & Chayovan, 2012). A smart phone is a cell phone which is incorporated with a data device plus many other features. While a cell phone is also referred to as a mobile phone, wireless phone amongst other terminologies. For the purpose of this proposal we will be referring to

all smart phones and cell phones as a mobile phone (NetLingo, 2017).

ICTs can be divided into two categories. The first includes ICTs that are largely dependent on traditional telecommunications networks, together with the internet, and allow on-demand communications to supply information customised to the user's requirements. How the information is applied, or whether it is used at all, is left up to the individual user (Tongia, Subrahmanian, & Arunachalam, 2005). The current research will be focusing on this particular category of ICT. In the second group of ICTs, information is processed and decisions are made on the basis of predetermined criteria without human involvement, for example sensor-based networks that establish automatic climate control for buildings (Tongia et al., 2005).

ICT exercises enormous influence; it has transformed the way we communicate with one another in addition to giving users access to resources everywhere, anytime (Barnard, Bradley, Hodgson, & Lloyd, 2013; Martinez-Pecino, Martinez-Pecino, & Lera, 2012). When people make little use of ICT it can lead to social exclusion and the opportunity for digital social interaction and integration within societal and socio-demographic changes may be lost. It is thus essential that older persons become involved in ICTs to capitalise on their participation and social integration (Martinez-Pecino et al., 2012).

Older persons demonstrate signs of negative preconceived ideas about technology, but show constant progress when working with technology and that their fear of the device diminishes (Carvalho et al., 2012). In other words, their anxiety regarding technology reduces as they become more comfortable and familiar with it. Since older persons have become users of technology, new terms such as 'silver surfers' have emerged (Choudrie & Vyas, 2014). Silver surfers are 50 years or older and often spend time online (NetLingo, 2016). Choudrie and Vyas (2014) showed that the cost of providing the infrastructure necessary for online social networking (OSN) was not a central factor in the adoption of OSN. Rather, older persons view a supportive environment, experience and knowledge of technology and online social networking as essential for accessing it.

Mobile communication technology has become popular worldwide (Vicente & Lopez, 2016) and is a practical communication tool. It is adaptable, user-friendly (Han, 2012), accessible and has a high level of acceptability as a means of frequent communication (Thupayagale-Tshweneagae, Nkosi, Moleki, & Human, 2014). The probability of mobile

technology equipping the poor in developing countries is high (Loo & Ngan, 2012). Mobile phones have become popular there because they allow people to stay in touch and provide uncomplicated access to information (Barnard et al., 2013; Vicente & Lopez, 2016). Mobile phones are also cheaper to own than computers and generally applications on mobile phones are less complex and more user-friendly than on personal computers (Loo & Ngan, 2012). Martinez-Pecino et al. (2012) revealed that the most common use of mobile phones by older persons was to keep in touch with relatives because they offer easy social interaction (Rice & Katz, 2003).

Older persons consider mobile phones important for use in case of emergencies, for security purposes and to preserve relationships (Fernández-Ardèvol & Ivan, 2013; Lee & Coughlin, 2015; Martinez-Pecino et al., 2012; Rice & Katz, 2003). Furthermore, they derive a sense of independence and freedom by using a mobile phone (Martinez-Pecino et al., 2012), which increases the phone's status among the older generation. Data presented by Martinez-Pecino et al. (2012) revealed that older persons use mobile phones mainly for calling and for sending text messages and creating contact lists. They rarely used the phone's other functions. It is thus evident that older persons use a mobile phone in a limited way. Furthermore, in the developing world, more often than not, it is the poorest members of the population who are the primary adopters of mobile phones. It would appear that if motivation is present the cost of ICTs is not a barrier to acquiring the device (Rice & Katz, 2003).

Technology is expected to offer a promising solution to the difficulties of the ageing population, and the role of ICTs in limiting adversity in everyday life is a critical issue (Kilpeläinen & Seppänen, 2014; Jaschinski & Allouch, 2015). As previously stated, there is the expectation that ICTs will be used frequently in the future to attend to the escalating needs, support and care among older persons (Sävenstedt, Sandman, & Zingmark, 2006). In this regard, research reported that the use of ICTs can aid in the delivery of services in the healthcare system to improve healthcare in hospitals (Ouma, Herselman, & VanGrauen, 2011). Hoffman et al. (2016) agree that ICTs, predominantly mobile technology, are expected to play a key role in the care of older persons and in addressing their subsequent needs in the context of a population that is ageing quite rapidly. This is particularly important in developing countries (Hoffman et al., 2016).

Mobile phones' high level of acceptability and simple access for regular communication

make it an appropriate instrument for providing support (Thupayagale-Tshweneagae et al., 2014). Many different technologies have the potential to increase and uphold improvements in health and quality of life for an ageing population (Agree, 2014).

In certain projects ICT applications have already been developed successfully to help resolve a range of problems related to the care of older persons. The use of ICTs for individuals' health can be referred to as eHealth (World Health Organization, 2017). For example several studies have proved that clinical outcomes for diabetics improved when interventions that incorporate technology were used (Tan, Cheng, & Wang, 2015). In addition, the integration of information technology with assistive technology "has opened a portal to the development of increasingly powerful, individualized tools to assist individuals with disabilities to meet their needs" (Agree, 2014, p. 33). Increasingly, governments and businesses are informing and contacting consumers in relation to healthcare and other services by means of ICT-mediated services (Goodall, Ward, & Newman, 2010). Regarding HIV and AIDS, Scalon and Vreeman (2013) suggest that individuals in a resource-limited environment could accept text messages as reminders to take their medicine. Monitoring patients with asthma via mobile phones has also proved to be successful (Holtz & Whitten, 2009). Furthermore, remote health-monitoring systems and a corresponding android application enabled through mobile phone services are available for older persons and their care-givers; these are more affordable since they rely on mobile phone services and no additional subscription services are needed.

ICTs can also be used to notify family and friends in emergency situations (Stafford & Hillyer, 2012). It has been shown that psychotherapy can be administered via technology, and by using this method, barriers to care due to distance or difficulty attending sessions in person can be overcome (Egede et al., 2015). Consequently mobile phones are well placed to alter the ways of counselling and monitoring the members of the population in need of support (Thupayagale-Tshweneagae et al., 2014). ICTs have the potential to make a life-changing impact on older persons (Van Biljon, Renaud, & Van Dyk, 2013), even on those who live in rural communities (Ruxwana, Herselman, & Conradie, 2010). The value of technology is depicted as empowering, and able to assist with daily activities and sustain and strengthen social and family relationships while overcoming some of the barriers related to ageing (Carvalho, Francisco, & Relvas, 2015; Chesley & Johnson, 2014; Hill et al., 2015).

ICTs provide access to individuals with their loved ones who do not have the capacity or

economic possibility of travelling. And can therefore be seen as a means of reaching or connecting with people that would previously have required travelling (Chiara, Cornaglia, & Deflorio, 2016). Consequently ICTs are used to initiate, develop and reinforce relationships at a relatively low cost in relation to travelling costs. This is important because governments are experiencing difficulty in supplying proper caring resources to the older population, and as a result family and friends play an important part in caring for older persons (Antonucci, Jackson, & Biggs, 2007). Sum, Mathews, Pourghasem and Hughes (2009) found that ICTs improved older persons' satisfaction with health, contact with family and friends, participation in hobbies and interests, and their overall happiness. It appears that ICTs such as mobile telephone technology have become a common method of interpersonal communication (Jin & Park, 2012) and have been explored as a potential alternative means to address other care needs.

Mobile technology has been explored as a feasible alternative for addressing the care needs of older persons both nationally and internationally (Knodel & Chayovan, 2012). In countries such as Australia, Spain and Europe, ICTs are already being used as a way of caring for older persons by providing support and giving them a sense of autonomy (Brandt, Haberken, & Szydlik, 2009; Feist, Parker, Howard, & Hugo, 2010). Mobile phones have increasingly been involved in the delivery of health interventions (Klasnja & Pratt, 2012). They have been used for monitoring symptoms in asthma and heart disease, for sending patients reminders about upcoming events, and for a series of other health problems (Klasnja & Pratt, 2012). ICTs are used to maintain relationships and strengthen connectivity (Carvalho, Francisco, & Relvas, 2015; Stafford &Hillyer, 2012) and can assist older persons who live alone to be safer and healthier (Clark, Lim, Tewolde, & Kwon, 2015; Thupayagale-Tshweneagae, Nkosi, Moleki, & Human, 2014), and even more so for those who are living in more isolated rural communities (Ruxwana et al., 2010).

3. Objectives

No centralised information resource on local government level currently exist for services and resources available to older people. The research question guiding this research is: what information about services would be useful for older persons and how could ICT tools address these needs in an appropriate and accessible manner?

The 'we-DELIVER'-project aims to improve direct service delivery to a marginalised group of

people. Through this project, policies regarding using ICTs to address care needs of groups with special needs will be developed; specific strategic and operational functions will be developed and implemented; local government officials will be supported and capacity will be developed through focused, experiential training and structured ICT interventions. This project will provide an example of how the available communication tools can provide information about services and resources that might exist in different departments and governmental spheres (national, provincial and local). The built-in functionality to obtain feedback from service recipients enhance the effective use of resources and ensure a shorter turn-around time for effective service delivery.

The overall objective of this project is therefore to develop ICT solutions to capture service and resource information that will address the care needs of older people (people 60 years and older) in multi-generational settings appropriately. The age of 60 years is used as marker because this is the age when people qualify for a means-tested state pension in South Africa.

The specific objectives of this project are to:

- Compile a map of services, resources and needs for three pilot communities in collaboration with an Advisory team, consisting of (older) representatives and local government officials of the pilot communities
- Develop and deploy ICTs (app and website) in three pilot communities
- Obtain and incorporate feedback from app and website users (older and younger community members and local government officials)
- Provide training to local municipal officers and transfer custody to local governments to ensure sustainability

This project has the potential to be the foundation in which many studies regarding government, the community, communications and ICTs can be based on. A general objective is to generate data for prospective postgraduate students. (**ANNEX 1**). These students will submit full proposals with detail regarding their prospective studies.

4. Methodology

The ‘we-DELIVER”-project is based on the values of collaboration and inclusivity. Collaboration means to work *with* local government officials and (older) community

members, rather than adopting a top down approach. Inclusivity refers to the inclusion of older people as a marginalised group of people, in decisions affecting them directly. It means to acknowledge the self-determination of people, irrespective of their age.

4.1 Research Paradigm and Method

In light of the problem statement and following Dewey (1938), from a pragmatic perspective, a research process will be set in motion to actively manipulate the environment by developing and implement ICTs to capture services and information about services for older persons. Pragmatism is defined in terms of the value of an idea or a tool of, in this instance an ICT solution, to address the lack of such a tool to practically change the situation and to hopefully have a "set of possible effects" (Campbell, 2011, p. 9). Pragmatism guides research that is interested in practice and how to change it (Goldkuhl, 2012). Informed by the research question, this study will use a multi-phases research approach. The research will be conducted in different phases and requires different methods of collecting data.

4.2 Site Selection

Initially only three local municipalities, Lokaleng, Ikageng, Sebokeng and 3 to 6 local government officials of the respective local municipalities, nominated for the project by local government (in collaboration with the South African Local Government Association (SALGA), will be involved. The three areas: Lokaleng (Mahikeng), Ikageng (Tlokwe) and Sebokeng (Sedibeng) have high levels of unemployment, poor living conditions and limited service delivery. Despite the prevalence of no-income households, 35.7% in Lokaleng (Mahikeng), 14.3% in Ikageng and 18.8% in Sebokeng, the mobile phone usage in all three communities are 80% and above. The impact of using ICTs in these communities will be likely very notable. These three areas for the pilot study have also been identified because of:

- existing relationships with the communities;
- older people represent 14. 2% of the population in these areas;
- the three localities include rural to semi-urban areas; and
- the North West Province (where two of these communities are situated) in general has very insufficient connectivity and is regarded as a rural province.

4.3 Procedure

The following procedure will be followed. A summary of the procedure is also provided in the logical framework (**ANNEX 2**).

- Obtain ethical clearance

The ethical application will be prepared and ethical clearance will be obtained from the ethics committee suggested by OPTENTIA's scientific committee.

- Meet with stakeholders and role players

Upon obtaining ethical approval, the identified (older) community representatives, local government officials and student deans of the respective campuses will be contacted. In compiling the project teams, people with relevant expertise and experience will be invited. Developing ICT solutions to improve holistic service delivery to older people in local government requires a transdisciplinary approach. Transdisiciplinarity means that people from different disciplines contribute collaboratively diverse experiences and expertise to produce a co-constructed effort that benefit the target groups (older people and local government officials). In 'we-DELIVER', people are included with expertise in: the development and implementation of community projects; gerontology; lecturing; and the development of curricula and in using ICTs.

Through the involvement of NWU-lecturers, post graduate students will also have the opportunity to get exposure to research-related activities, to engage with older people and local government officials and to develop responsible citizenship. In 'we-DELIVER' we plan to involve postgraduate students (more or less 60 students) on the three respective campuses (20 students per campus) of the North-West University, to engage in the three pilot sites.

Members of the steering committee and the project team representing the respective three campuses of the NWU as well as SALGA will have an inaugural meeting once the teams are confirmed.

During the first meeting, the project teams will share their respective expertise to create a baseline for everyone involved in the project. Expertise include: internationally recognised researchers and practitioners in gerontology (study of older people); experienced lecturers to present training; community practitioners with extensive community engagement expertise; experts in programme development; skilled ICTs developers; experience in developing and implementing ICT solutions to other contexts.

- Identify participants.

The NWU role-players have established relationships with the pilot communities and in all instances, the 'we-DELIVER'-project will be a continuation of existing relationships. The trust that developed between the NWU and SALGA teams with the communities and local governments will facilitate the introduction of ICTs, particularly to older people who described mobile phones as: *"a white people's thing"*. We regard this an ethical approach to involve communities with whom the NWU stakeholders have established relationships, because of a continuing relationship after completion of the 'we-DELIVER'-project. Working with communities with which NWU researchers already have established relationships is preferred as building new relationships with communities take extensive time which will limit the execution possibilities of the project that is limited to 18 months.

The following participants will be identified:

- Community representatives of the three communities, including either people older than 60 years or community members involved with issues affecting people, aged 60 and older.
- SALGA and NWU representatives will be requested to approach the local municipalities and request to contact the respective local municipalities of Mahikeng, Tlokwe (North West) and Emfuleni (Gauteng) and request their participation in the project and to identify local government officials who are willing to participate in the project and to collaborate with community representatives of Lokaleng, Ikageng and Sebokeng. A local government official or more than one will be nominated as the dedicated person(s) who will use the app; populate it with new information, deal with the feedback of users and the logistics with hosting the app and website.

- Contact role players

Where people have access to emails, the informed consent letter will be emailed to them. In the case where no email access is available, the 'we-DELIVER-project' will be introduced on local radio stations, weekly newspapers, and announcements at local primary and secondary schools at the respective local communities. People aged 60 years and older or community members who have a vested interest in older people, will be invited to meet on a scheduled date at a local school.

- Meet with various role players in the different contexts

On predetermined dates, NWU role-players, local government officials and the (older) community representatives will meet. At first in Vanderbijlpark, Potchefstroom and

Mahikeng. The aim of the project will be discussed and the attendees will be requested to identify 7 representatives per community to form an Advisory team.

- Form an Advisory team

The Advisory team will oversee the activities, share information with the respective pilot community and the progress of the project with the local municipality. The Advisory team will play an important role to advise the NWU role-players and SALGA as stakeholder of implicit cultural values that need to be considered in communicating the project, in obtaining information about services and resources, and to provide feedback on the information using the ICTs. The Advisory team will also play a vital role in the sustainability of the project because they would had exposure to the type of information required to populate the app and they are continuously involved with the specific community. The assumption is based on the notion that people who have been involved in decision making are more likely to take ownership of a project. Applied to 'we-DELIVER' the sustainability of populating ICTs does not only rely on a few local government officials but becomes a joint responsibility of the community.

- Map services and resources for older people in collaboration with Advisory team consisting of (older) representatives of pilot communities

Use existing methods to map services and resources (e.g. Catch and match; Smart Connect) to determine the applicability for the 'we-DELIVER'-project. If possible, use or adapt the mapping instruments. In correspondence with the Advisory team, the constructs 'services' and 'resources' and appropriate for 'older people' will be discussed. The following information will be obtained: current services and resources; providers of services; nature of services and resources that could be used according to an asset-based approach. An asset-based approach means to take stock of people, infrastructure, and opportunities in the broader environment, community initiatives and to determine its usefulness to serve as a resource. In additional, information will be obtained from NGOs in the respective communities, and from the community members which will be invited to contribute through radio stations and newspapers and through announcements at hospitals, clinics, primary and secondary schools and religious organisations. The inclusion of schools is important because in research conducted about older people's mobile phone use, in 2013, it was observed that older people relied on younger people to assist them to use mobile phones, either their own phones, or those of other people. In most of the cases, willing (or sometimes unwilling) and competent, related or unrelated younger people, assisted older

people to use their mobile phones to address their medical, psycho-social, relational and instrumental care needs.

- Identify older people's needs for services and resources from existing sources (or if inadequate conduct a needs assessment)

Existing research conducted by HelpAge on needs of older people; as well as research conducted in KZN will be used to identify older people's needs for services and resources. The particular contextual realities of every pilot site (rural to semi-urban) will be used to determine in collaboration with the Advisory team if additional needs assessments are required. If that is the case, (older) community members will be invited to participate in giving information using the IGNITe questionnaire (**ANNEXES 3 and 4**) and semi-structured interviews. Survey research will be used as part of the quasi-experimental design to summarize responses with percentages or frequencies.

- Develop user-friendly app and website

After compilation of a list of services and resources which serve the needs of older people, a user-friendly app and website will be developed. The Android platform (Android Studio and Java) will be used because the software is free. User-friendliness refers to easily accessible information (size and visual recognisability). ICTs will have built-in functionality to provide feedback by app and website users. The platform (server) of the three respective local governments will be used.

- Populate app and website with information

The ICTs will be populated with information on services and resources for older people. Information will be presented logically to ensure easy access of information for either the older people themselves or through other related or unrelated people.

- Deploy app and website in the three pilot communities

Once the app is available in app stores for download and the websites are up and running, the availability of the ICTs will be communicated through local radio stations, weekly newspapers, and announcements at local primary and secondary schools in the respective local communities. The website address will be provided as well as the name of the app, 'we-DELIVER' to enable people to download the app. For the purpose of this project, only Android supported mobile phones will be used. Once the methodology of using ICTs to map services and resources and to revise information has been developed, other supporting

mobile phone platforms (e.g. iMac) may be consulted, depending on the costs involved.

- Obtain feedback from app users (older and younger community members and local government officials)

(Older) Community members, local government officials, the Advisory team, and team members will be invited to use the ICTs. The ICT users will be requested to provide feedback through the built-in functionality of the ICTs. Specific feedback will be requested on:

- appropriateness of the information
- correctness of the information;
- usability of the app and website;
- user-friendliness of the app and/or website;
- unaddressed needs or services;
- usability of the feedback option on the app or website.

The feedback that will be obtained from app users will be analysed quantitatively and qualitatively. Quantitative data will be analysed using methods of quantification, while the qualitative data will be analysed using thematic analysis.

The Advisory and project teams will jointly analyse the feedback in terms of how many users provided feedback; who the users are; how they use their phones, who they ask for help (quantification); and what the nature of the feedback is (qualitative analysis).

- Improve the usability of information available on the app and website

The feedback obtained will be compiled by postgraduate students and workable suggestions will be suggested by the Advisory and project teams to the app and website developers who will revise the ICTs if required.

- Share findings with representatives of the three pilot local municipalities (community members and local government officials)

During scheduled meetings, the Advisory team, NWU role-players and SALGA as stakeholder will share the process of ‘we-DELIVER’ with representatives of three pilot local municipalities (community members and local government officials). The name of the app and the link to the website will also be introduced to NGOs, local, provincial and national

government departments.

- Develop a training manual and present experiential workshops to local municipal officers

Based on the process followed in 'we-DELIVER', and the theory and practice of programme development, a hands-on training manual will be developed to assist local government officials to keep the ICTs updated and for future training needs. Content in the training manual will include:

- The workings of ICTs and the use of app and website;
- Needs assessment (older people's specific needs as well as other groups of people);
- Identification of services and resources
- Population of app and website with appropriate information;
- Revision of existing information on app and website;
- Developing a protocol for reference to deal appropriately with feedback received through the app and website;
- Networking with NGOs, across local government departments and government spheres.

Key to service delivery is the involvement and the extensive focus on local government officials. As part of the 'we-DELIVER'-project, SALGA will arrange training that will be presented to local government representatives of the North West and Gauteng Provinces. Even though the training will eventually be conducted in the other 7 provinces, for this application, only these two provinces will be involved since the pilot communities are in these two provinces.

Local government officials of the three pilot communities will be involved with the project from the beginning throughout the process. This exposure will facilitate opportunities for observational learning. However, focused training in an experiential manner will facilitate mastery of specific skills. The skill of conducting a needs assessment; identify appropriate services and resources; using ICTs to communicate information but also to obtain feedback are skills that are not only relevant for the 'we-DELIVER'-project, but for people with special needs or groups across all ages. The training will be provided by means of experiential workshops, which have been conducted with great success from 2004 to date.

The nature of these workshops is based on principles of the Ripples on a Pond (ROP) model

as an enabling process for adult learning (Fivaz, Herbst, Roos, & Hoffman, 2012). Five overlapping ROP processes are used to facilitate learning in the participants: *wanting* (1) to learn; taking ownership of the *need* (2) to learn; learning through *doing* (3); receiving and giving *feedback* (4) and *digesting* (5) the information to make sense of it and to apply it in different contexts.

These processes are not viewed as linear or pre-programmed stages of learning but rather as overlapping processes that metaphorically spread ripples to facilitate learning. For example, when learners receive feedback, the feedback helps them to make sense of their own learning by doing. The feedback helps them to digest the information they have been processing, and turn it into a start towards building their own knowledge from it. The feedback also clarifies the purpose of the information.

In the experiential training workshops, the following instructions will be given to the local government officials.

> You will be exposed to a lot of information from diverse perspectives on using ICTs to improve holistic service delivery to older people in local government. This assignment aims to assist you to organise the information so that you can apply it practically. It is therefore suggested that you use the following questions to organise the information throughout the different presentations.
>
> - What did I learn from the presentation that I did not know before?
> - How will this information assist me in my work with older people?
> - What practical applications could be made on the basis of the information?
>
> At the end of the two and a half day workshop you will be expected to do a presentation in groups to demonstrate how you will develop and implement the 'we-DELIVER'-project in your particular local government context. Demonstrate that you have incorporated all the relevant information from the presentations. Your project should include action plans for its planning, implementation and evaluation of an appropriate programme for older people. You have to be specific in your presentation.

The following guidelines are suggested.

- Name of the project
- Aims of the project
- Information obtained from the workshop that is included in the planning of the project
    - Refer to specific presentations and illustrate their relevance to the project
    - Indicate what other information is needed for the project that was not discussed at the workshop
    - Indicate methods to access the information and from whom
- Action plans to implement the project:
    - Who?
    - Where?
    - When?
    - How?
- Evaluation of the project
    - Measures to evaluate the impact of the project

Local government officials will receive certificates on completion of the training. This training is motivated by the notion that educational opportunities on gerontology (study of older people) are often offered only to registered students and consequently they are inaccessible to non-students.

- Transfer custody of ICTs to local municipalities to ensure sustainability

'we-DELIVER' will be concluded with transferring the custody of the app and website to the local governments in North West and Gauteng Provinces.

5. Duration and Action plan

Table 1

We-DELIVER action plan

Year 1													
	1st - 6months						2nd - 6 months						
Activity	Month 1	2	3	4	5	6	7	8	9	10	11	12	Implementing body
Meet with stakeholders and obtain ethical clearance													Applicant
Identify (older) representatives and local representatives of the three pilot communities and communicate message to local radio stations													Applicant NWU and SALGA Advisory team
Map resources for older people with representative community													Applicant NWU Local government officials Advisory team
Identify the needs of older people and conduct needs assessment if first was unsuccessful													Applicant NWU Advisory team
Develop user- friendly app and website													NWU
Develop training manual													Applicant NWU

Activity	13	14	15	16	17	18	Implementing body
Develop user- friendly app and website (continued							NWU
Populate and deploy app and website to the three pilot communities							NWU Local government officials
Obtain feedback from app users							NWU Local government officials
Improve usability from information available from app and website							NWU Local government officials
Share information with representatives of the local municipalities							Applicant NWU Local government officials Advisory team
Experiential training workshops							Applicant NWU
Transfer custody of ICT's to local municipalities							Applicant NWU Local government officials

6. Ethical considerations

We regard the 'we-DELIVER' project as a low risk project. In 'we-DELIVER', older people's needs regarding formal and informal services and resources will be identified and mapped in collaboration with (older) representatives. ICTs (specifically an app and website) will be developed and to sustain the initiative. Local government officials will be engaged in learning

opportunities to populate the ICTs with appropriate information and to transfer the knowledge and skills they have gained from this project to other work domains.

A research management plan will be developed in collaboration with the project and Advisory team members. The following content will be included:

Data Collection

What data will you collect or create?

Interview recordings and transcriptions will be collected as well as questionnaire results.

How will the data be collected or created?

A full data management plan is under development using the South African Online Data Management Planning Tool offered via DIRISA (http://dmp.dirisa.ac.za/). New information will be incorporated to ensure current best practices and guidelines are followed and latest available technology is used as it becomes available without hampering project progress.

Raw project data will be collected electronically via questionnaire software (QuestionPro subscription of NWU) or using dictaphones and transferred to secure storage provided for Research Data by the IT department as part of the eResearch Initiative. A project storage space willl be provisioned by IT for use by project members. Various directory-and file-level permissions can be set to ensure only authorised members have access to various files and documents stored in the project space.

Data will be transfered from the questionnaire software to the project data storage space regularly to ensure project data is kept up to date in a central place.

Data collectors will be required to upload data to the project directory as soon as possible after collection to ensure data is not lost. Data collectors will not need to keep local copies of the data as the Research Data Storage Space is web accessible via login. The data will be stored and backed up according to agreements with IT.

Only authorised project members will have access to the raw data as well as de-identified data until data is published.

Documentation and metadata

What documentation and metadata will accompany the data?

The questionnaire that will be used has been developed in a previous study and has metadata and verification data associated already.

Recordings will be uploaded to the shared folder along with a README file containing information about where, when, and by whom the interview was conducted along with other relevant information. Each recording will have a README file associated.

Ethics and Legal Compliance

How will you manage any ethical issues?

In each phase of the project, different ethical issues are relevant. Ethical considerations will be a standing point on the continuous discussions of the project team in collaboration with the Advisory team.

How will you manage copyright and Intellectual Property Rights (IPR) issues?

To be determined through negotiations with app and website developers.

Storage and Backup

How will the data be stored and backed up during the research?

Project data will be stored on the NWU Research Data Storage space. The data is backed up and secured according to NWU IT policy. Only authorised project team members will have access to the data.

Selection and preservation

Which data are of long-term value and should be retained, shared, and/or preserved?

De-identified data may be published in open access data repositories depending on agreement with the funder, study participants, and with ethics approval. Data publication is becoming a more common phenomenon as the Open Access drive gains momentum. We will work closely with leaders in the field of data publication such as DataFirst (who has published survey and interview transcripts in the past) to ensure best practice is followed and ethical considerations is not compromised.

What is the long-term preservation plan for the dataset?

To be discussed during consultation meetings and depending on infrastructure and services

available through institutional or national facilities.

Data Sharing

How will you share the data?

Where possible, findings emanating from the research will be published in accredited Open Access Journals. De-identified data supporting research publications will be published in a NWU-supported open access research data repository according to best practices and guidelines and in consultation with experts in the field of open human data. Ethical considerations will be taken into account when data is published in the data repository.

Are any restrictions on data sharing required?

There are no known restrictions on data sharing.

Responsibilities and Resources

What resources will you require to deliver your plan?

In order to deliver the plan as described the project will require the following:

- Access to:
  - shared storage space in the NWU research data storage platform;
  - a license for the use of QuestionPro (Survey Analytics);
  - mobile devices for capturing survey results in the field;
  - recording devices for interviews;
  - software for transcription of interviews;
  - internet connection to upload data to the shared storage;
- Training in:
  - Research data management practices
  - The use of collaborative writing tools
  - The NWU research data storage solution

Who will be responsible for data management?

Data management will be the responsibility of the project coordinator as described in the proposal and project work plan.

Every team member will be educated in the importance of proper data handling practices to ensure data quality and security is preserved at every step of the project.

7. Possible risks/discomforts and benefits

The risks and benefits mentioned below will be explained in the informed consent form.

7.1 **Possible risks/discomforts**

The possible risks or discomforts associated with this project are discussed in Table 1.

Table 1

Potential risks/discomforts and strategies to deal with them

Probable/possible risks/discomforts	**Strategies to minimize risk/discomfort**
Sustainability of the project	Sustainability can be strengthened when all the relevant stakeholders collaborate to share different views of sustainable outcomes as well as indicators to measure and monitor the realisation thereof. It is therefore proposed to obtain an all-inclusive buy-in from all NWU role-players, the stakeholders and the Advisory team. Together they will decide on what they regard as sustainable outcomes for the project and to identify sustainability indicators which will be used to measure the progress of the project in terms of sustainability.
Older persons may not have access to cellular phones and the Internet, and devices may be out-dated.	Older people and/or significant other people in their lives have access to smart phones. Alternatively, older participants can use e-Hubs which will be available at clinics or the office of local governments in walking distance from older persons. Where reasonable software will be developed to suit applicable operating systems functional for out-dated mobile devices.
Financial constraints to buy sufficient data for app usage.	Additional funding will be sourced to develop e-Hubs. It could also be negotiated with data provides to have access to the service at no extra

	cost.
Local government officials expressed lack of knowledge, skills and a negative attitude to provide an integrated service to older people.	Even though some of the local government officials expressed a negative attitude, most local government officials indicated their willingness to learn about services to older people, but expressed a need for focussed training. Only those local government officials who are willing to participate in the project will be included. Also, by including NWU staff members on the three respective campuses their skills and expertise will be available during the project and hopefully after the project has been completed.
Older people are not regarded as priority in the allocation of funding by local governments; lack of budget and not included in key performance indicators.	Other role-players (e.g. COGTA) in service provision by local government will be approached to support the sustainability of services; develop strategies for accountability and to promote effective communication across local government and governmental levels. Older people will also be encourage to lobby for their rights and to indicate which services they regard as important.
There are appropriate services to older people presented by NGO's, local, provincial and national government.	Services and resources are provided, however they are uncoordinated and often not known. The mapping of services and resources will enable a systematic assessment of what services and resources are still required and where and how to obtain them.
Lack of coordination between NGOs, across local government departments and across governmental spheres.	In this project examples of effective integrated management systems will be used in the respective pilot communities to promote coordination between local government departments.
Information on app and website is current (continuously updated).	A two-pronged process will be used: Both local government officials and service providers

	(community) will populate the app and website with information. The risk of losing data is limited by developing a back-up system.
Relevance of information on app and website	This project claims that information will be targeted to a specific audience, which increases the accuracy of providing information from a shot-approach.
Risks related to the team members, community and stakeholders that are geographically separated.	This project is aligned with the general green policy of the North-West University. Through the green policy a paper-free operations environment is supported by presenting information in digital format. Electronic mailing and use of the Internet will drive continuous communication although face-to-face communication cannot be replaced. Communication modes will also be adapted according to the target audience.
Political agendas and the influence of ward councillors in the respective communities.	As the main aim of this project is to make use of ICTs within these communities to improve communication so that the needs of these specific communities are met, in providing feedback, it allows government to improve on their policies as well as their communication techniques and ultimately to improve service delivery within these communities. These decision-makers are the critical role players to impact on legislature and can be identified as collaborative partners during the course of the project.
Older people as a vulnerable group	This project aims to obtain the needs of older persons for services and resources. Many older persons share the same needs due to contextual realities or age-declining challenges. It is anticipated that most of the needs of the older persons will be capture by

	those older people who are willing and able to participate. Also, NGOs and people involved in older person's issues will be included in the research to give information about the needs of older persons from their perspective. Different means of communication will be used to limit the bias of researchers. On the days of the data collection, independent researchers will obtain informed consent. Not any participant will not be forced to do something against their will, or be threatened, pressurized or persuaded with force to take part in the study. Refreshments will be provided after the completion of the questionnaires and interviews.

7.2 Benefits of the research

Two groups of people may benefit directly from this project: older people and their significant others and carers (where relevant) may obtain information about services and resources in an integrated and coordinated manner.

Older people:

- will have easy and immediate access to information through ICTs (which is a new innovation); (through using it themselves or through other people)
- care needs can be addressed much more efficiently if the services or resources are available or regularly updated;
- unaddressed care needs can be identified and appropriate interventions can be planned and implemented, which in the long run will save on the care costs;
- will have the opportunity to provide input or provide feedback through the build-in functionality in the ICTs regarding the type of services they require or feedback on the quality of the services or resources that they receive (new innovation).

Although an initial 16% of older people in the respective communities may benefit from the project, a blueprint for how services and resources can be identified will be developed that could potentially benefit all older people across the nine provinces of South Africa.

Local government officials:

Key to the success and sustainability of the project is skilled and knowledgeable local government officials. The direct results of the development of ICTs for local government is that 3 to 6 local government officials will be involved in the development and implementation of the ICT project. Local government officials may develop transferable skills and knowledge to map needs, resources and services which not only benefit older people, but people of all ages. Two of the three pilot sites are within disadvantaged areas with below average connectivity. Attention to these neglected areas could also have a multiplier effect through building technical and management capacities in other domains of local government.

Other benefits are that services and resources of NGOs, across local government departments and government spheres are coordinated using ICTs; that missing gaps can be identified by NGOs, across local government departments and spheres of government and interventions are planned accordingly; and hopefully that services to older people become a priority in IDPs

Indirect benefits

The 'we-DELIVER'-project will contribute many indirect benefits:

- Through the involvement of the pilot local governments, lessons learned could be transferred to other projects and adjusted to suit local governments, ranging from rural-traditional communities to semi-urban contexts. The skills that will be learned in this ICT project could be transferred to other domains**.**
- The nature of the 'we-DELIVER'-project has the potential to benefit all community members and not only older people. For example, information about medical care is not only relevant for older people, but is important for people across the life span. If properly managed, these ICTs can therefore serve multiple purposes and also address transversal issues.
- Services and resources can be optimised. It is not a secret that care resources are

limited in the most rural to the most affluent local government in South Africa.

Through ICTs:

- it would be possible to promote effective cross-sectoral coordination between and within the different levels of government and other service providers and to limit the duplication of services between NGOs, across local government spheres and government levels (saving costs and using scare resources optimally).
- missing gaps can identified by NGOs, across local government spheres and government levels and appropriate interventions can be planned (saving costs and using scare resources optimally).
- The development of ICTs to address the objectives of 'we-DELIVER' has multiplier potential since the existence of an app and website will enable knowledgeable and skilled local government officials to populate the ICTs with information; to act as coordinators of service provision; and, to use the ICTs to provide information of services and resources to other groups of people. Also, the built-in feedback functionality promotes citizen involvement.

- The channels of communication in terms of feedback and participation by older persons will be enhanced. Older people will have an opportunity to provide feedback about issues affecting them directly;
- Postgraduate students can develop their academic and research skills, apply theoretical knowledge in practice; and to learn about responsible citizenship
- Local government officials will have the opportunity to draw on evidence-based research to improve practices in their contextual realities;
- The community engagement of the North-West University is strengthened; academic know-how is used to the advantaged of communities;
- Research can be published and enhance the accessible of information to other role players in public administration.
- By involving a large number of post-graduate students, the feasibility of the project is ensured.
- Students will benefit from their involvement because they will get an opportunity to engage with community members who find themselves in low-resources environments, and become aware of the disparities in the South African contexts.
- The engagement between (older) representatives and students creates opportunities for intergenerational interactions and although the aim is not to promote the relationship between generational members, students and older people who previously participated in intergenerational projects, confirmed that the stereotypical

assumptions they had about the generational other, changed after interacting with one another. Multi-generational use will also inform younger generations of resources – this will build care capital.

- Another advantage is that students may be able to assist older people with their mobile phones if the opportunity presents itself. In previous research, older people said that their phones didn't work, but on close inspection, students showed the older people that the phone was just silenced - a function that the older people was not aware of.
- The multiplier effect of this project will be that eventually all local governments in all nine provinces would have been exposed to the training and benefit from the investment. The directory of services and resources on the app and website can be used by all governmental spheres to utilize the limited financial and human resources optimally.

8. Team members

A list of people, the capacity in which they are involved in the project and their affiliation is provided in **ANNEX 1**.

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