

# The SAP Meraka UTD Research Agenda on Business Solutions for SMMEs in Emerging Economies

Ernest Ketcha Ngassam and Segopotso Moshapo

*SAP Meraka UTD, Presequor Park, Pro Park Building 3, Lynwood, Pretoria, 0004 South Africa,  
{ernest.ngassam, segopotso.moshapo}@sap.com*

## Abstract

The strategic objective of SAP Meraka UTD is used as the basis for the elaboration of a research agenda containing research topics of which expected outcomes could contribute to the challenge of appropriate ICT technologies for emerging economies. Along the process of identifying the research topics, attention is given to their alignment with the UTD's strategic goals of: advanced human capital development and socio-economic development of emerging economies through ICT. The proposed research agenda forms the basis for undertaking basic and applied research aiming at contributing to the sustainability and growth of SMMEs in emerging economy countries. Identified research topics also form the basis for the scouting of prospective candidate researchers and experts in the broad interdisciplinary field of ICT for development.

## Keywords

Research Agenda; Research themes; Research fields; Research areas; Research outcomes; projects

## 1 Introduction

In the last quarter of 2006, the SAP Meraka UTD (Unit for Technology Development) was formally established in Pretoria, South Africa. The unit is a joint research initiative between the CSIR's Meraka Institute and the SAP Research Pretoria<sup>1</sup>. Its mandate is to undertake basic and applied research in the information and communication technologies (ICT) sector with the aim of contributing to: 1) advanced human capital development through Masters Internships, PhD and Post-Doctoral programmes; and 2) socio-economic development of emerging economy countries [1].

In order to achieve its objectives, the UTD opted to first narrow the scope of its research objectives to that of ICT for Small, Micro and Medium Enterprises (SMMEs) in emerging economies. In other words, the immediate mandate of the UTD is to address the following research challenge: *"How can sustainability and growth of SMMEs in emerging economies be facilitated through ICT?"* It is broadly acknowledged in the literature that SMMEs significantly contribute to both employment and GDP of emerging economy countries [2]. Furthermore, in emerging economies, SMMEs account for up to 90% of enterprises in a country [2]. In this regard, investigating means by which these vital enterprises can sustain themselves using ICT as a catalyst appears to be a logical step to follow.

This report represents the first step taken by the SAP Meraka UTD in providing concrete answers to the forgoing key research question. The next steps will be to conduct research on identified research topics, validating inter-alia outcomes and deliverables against the UTD's strategic objectives.

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<sup>1</sup> [http://www.csir.co.za/meraka\\_interface.html](http://www.csir.co.za/meraka_interface.html)

The research agenda sets out the context for identifying key research questions for which solutions and answers are searched for on a short to long term basis. SAP Meraka UTD decided to use a research agenda as input in the process of assessing the progress made during the course of our activities, bearing in mind that the following two key issues are assessed on a regular basis:

1. How have SAP Meraka UTD contributed to advanced human capital development?
2. How have SAP Meraka UTD contributed to the sustainability and/or growth of SMMEs?

From an academic point of view the monitoring and evaluation of the progress made in answering the first question will be based not only on the quality of candidate researchers produced within SAP Meraka UTD, but also the impact that is made on issues of socio-economic development. In this regard dissemination of research findings in appropriate forums such as conferences, journals, workshops, seminars, etc. is of importance.

The monitoring and evaluation of the progress made in answering the second question is dependant on active engagement with SMME communities in order to demonstrate and validate ideas. It is for this reason that SAP Meraka UTD intends to explore research methodologies such as the “Living Lab” concept.

This report provides a list of research topics that have been identified for established and candidate researchers as directed by the SAP Meraka UTD research agenda.

The report is organised as follows: Section 2, briefly provides contextual definitions required to understand the objectives of the SAP Meraka UTD research agenda. In section 3, the research agenda is presented. Section 4 presents an extension of the research agenda, which reflects the different types of expertise that are required for its implementation. Section 5 presents a list of research topics and projects currently identified within the UTD and illustrates the alignment between research topics and projects. The conclusion and further directions to this report are provided in section 6.

## 2 Terminology

This section presents definitions of terms (concepts) that are used to describe the structure of the research agenda. The ultimate reason for this is to enable the reader to have a clear understanding of the context of the SAP Meraka UTD research activities.

### 2.1 Definition: Research Agenda

The research agenda defines a set of interrelated research themes and areas that are considered to be key drivers of research activities. It sets out the overall context for identifying relevant research fields and topics for the activities of the SAP Meraka UTD in order not only to address issues related to advanced human capital development, but also challenges of sustainability and growth amongst SMMEs in emerging economies, through ICT-based business solutions.

### 2.2 Definition: Research Theme

A research theme is a unifying idea pertaining to a set of promising approaches to solutions that can be explored to fulfil the objectives of a known broad research challenge.

For example, *Deployment Business Models* that deals with the appropriateness of business models for the deployment of ICT-based solutions for SMMEs is one of the three research themes that will be explored in order to address the research challenge mentioned in section 1. Plausible promising approaches to solutions that need to be explored under this theme would be *appropriate software licensing models* for emerging economy SMMEs.

### 2.3 Definition: Research Area

A research area represents a collection of concerns that establish the context for basic or applied research activities such that there is alignment between research fields and research themes. A concern may be based upon a single or more research themes. Research areas are therefore the basis for exploring and understanding the issues (e.g. challenges and opportunities) associated to related research themes.

One of the research areas that have been identified as related to the research theme, *Deployment Business Models*, is: *Understanding the Architecture of Software Systems to be designed for SMMEs*. In order to contribute to this theme a research field such as SOA (Service Oriented Architecture) will have to be grounded on specific challenges and opportunities that emanate from understanding the architecture of software suitable for SMMEs in Emerging Economies.

### 2.4 Definition: Research Field

A research field is an established or emerging body of knowledge within the general context, of which researchers world wide contribute to and derive insights from as they perform their research activities.

For example, from a business software systems perspective, Service Oriented Architecture (SOA) is one research field (amongst many other possibilities) which can make contributions towards the theme of *Deployment Business Models*. Furthermore, the expertise and competencies of researchers are essentially established within specific research fields.

### 2.5 Definition: Research Topic

A research topic is a narrowly defined challenge that is undertaken by a specific researcher or group of researchers within a broader alignment of research themes, areas and fields.

Besides being the basis for masters and doctoral students to undertake the studies (contribution to the advanced human capital development aspect of the UDT objectives), research topics can also provide useful input to setting the objectives of applied research projects. An example of *Service Oriented Architecture for SMMEs Applications in Emerging Economies* is one of the many research topics associated to the research field SOA.

### 2.6 Definition: Research Outcomes

Outcomes of a research topic are documented findings (e.g. in journal papers, conference papers, thesis, dissertations and patent filings) that a researcher makes when pursuing a research topic.

Significant research outcomes would include “fundamental concepts” whereby researchers make contributions to the body of knowledge in a specific research field or “pragmatic resources” that have real-life impact in a specific research area.

## 2.7 Definition: Project

A project is a list of research activities aiming to solve real-life problems related to the sustainability and growth of SMMEs in emerging economies. To this end, SAP Meraka UTD will involve role-payers (SMMEs) and other stakeholders (if necessary) throughout the project life-cycle. The validation of results is based on demonstrations of the value proposition that could positively effect on role-players' operational objectives.

In general a project should be seen as of multidisciplinary nature so as to leverage expertise and resources that are maintained within the SAP Meraka UTD.

An example of a project is *Access to Resources by emerging economy SMMEs*. Since the aim of the project is to use ICT as a driver to facilitate access to resources by SMMEs, two research fields will be of interest for the completion of the project:

- A research topic such as *SMMEs challenges and opportunities* that emanates from the research field of *SMMEs Ecosystems* will provide an expert knowledge on the kind of resources required by SMMEs in order to sustain their operations;
- Results from a topic such as *web-service advertisement, discovery, composition and binding* that emanates from the field of Advanced Web-technologies will provide technology solutions for the translation of identified resources into web-services so as to facilitate their access by ICT-enabled SMMEs.

With the concepts set forth, the following section presents the SAP Meraka UTD research agenda as well as the nature of the relationships amongst components that form part of the agenda.

## 3 The SAP Meraka UTD Research Agenda

Figure 1 illustrates the agenda, in terms of three identified research themes (Appropriate ICT Infrastructure, Deployment Business Models and Appropriate Business Software) of which the purpose is to drive research within the SAP Meraka UTD. Research themes are interrelated through three research areas (People-Technology Interaction, Solutions Deployment and Emerging Economy SMME Environment) from which opportunities for scoping research activities emanate.

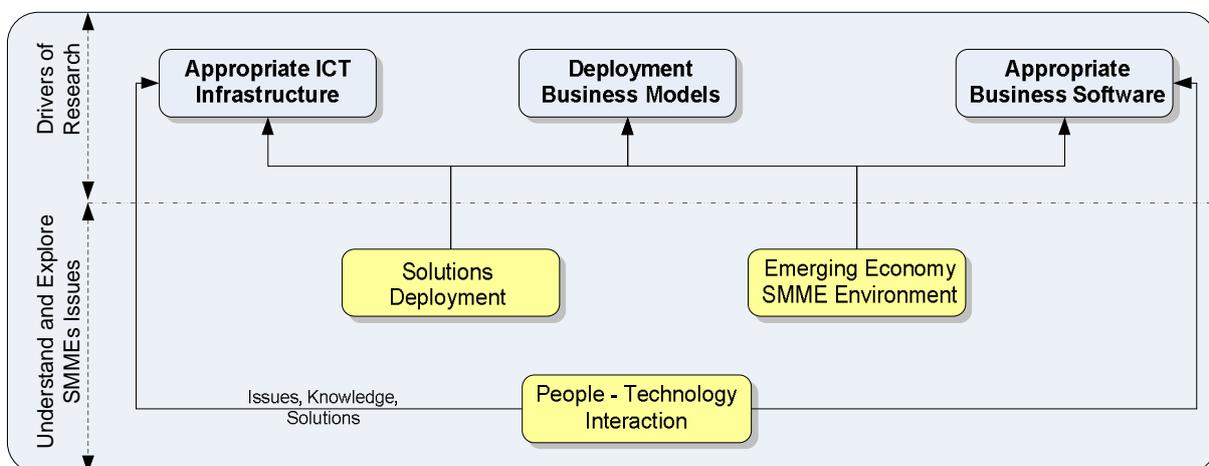


Figure 1: The SAP Meraka UTD Research Agenda

The three identified research themes, establish the context for driving ICT-based solutions for enabling sustainability and growth of SMMEs in emerging economies. The themes are motivated as follows:

- *Appropriate Business Software*

For ICT-enabled business solutions to be widely adopted by SMMEs, in emerging economies, they have to appropriately address the challenges and opportunities that are related to the SMME business ecosystem. In order to address these challenges and opportunities, it is imperative to understand issues related to how the SMME user community interact with technology solutions and how easy it is for them to access the solutions i.e. issues related to *people-technology interaction*.

For emerging economy SMMEs, it is particularly important to ensure that technology solutions are easily adaptable to diverse levels of user competencies and preferences (e.g. culture) and are usable with ease. In this regard a topic of interest, amongst others, is enhancing *usability* of solutions. Another example of a topic is the *utility* of ICT-based business solutions provided to emerging economy SMMEs. This cannot be taken for granted considering that even in industrialised economies, SMMEs experience significant mismatches between the value offered by ICT solutions compared to the effort and resources that have to be invested in order to acquire and utilise such solutions. In order to provide solutions with appropriate value propositions to emerging economy SMMEs, it is imperative to understand how their value creation systems operate (i.e. issues related to emerging economy *SMME business environment*).

- *Appropriate ICT Infrastructure*

ICT-based business solutions can be provided through a plethora of infrastructure platforms. These include mobile devices, personal computers (PC), television sets, radio, the Internet, storage networks and many other ICT systems that establish the infrastructure for delivering services to users.

From a perspective of usage, these infrastructural ICT platforms are diverse in terms of the availability (“ubiquity”) and the interaction modalities (e.g. some are speech-based, text-based and multimedia) that they provide for users. In order to leverage ICT infrastructure capabilities for providing business solutions, it is considered essential to understand how people would access and utilize them (i.e. issues related to *people-technology interaction* – with emphasis on *accessibility*).

Furthermore, for ICT-based solutions to be widely adopted by SMMEs, they will have to be provided in ways that are affordable in accordance to the diverse circumstances of users. This places significant importance on the distinction between infrastructural technology solutions and those that contribute directly to value creation in business operations (i.e. business solutions) so as to facilitate initiatives of driving cost of ownership down. In this regard topics of interest relate to enhancing *affordability* of solutions.

- *Deployment Business Models (Appropriate Business Models for providing ICT-based solutions)*

Another important dimension for enabling wide scale adoption of ICT-based business solutions is to appropriately match the resource burden (e.g. financial, time and skills) to SMMEs of acquiring, owning and maintaining such solutions to the value (utility) that is provided to users. Achieving such alignment should enable commercial viability of both the ICT-based business solutions that are offered to emerging economy SMMEs. It is therefore imperative to understand how emerging economy SMMEs create value within

their environments of operation in relation to possibilities for deploying ICT infrastructure into the operations of such a diversified group of users. Developments that are of interest in this regard are related to the networking of business activities through the Internet and Web technologies in a manner that is viable for both SMMEs and producers of business solutions.

As alluded to in the above motivations of the research themes and depicted in Figure 1, three research areas have been identified, thereby setting the context for exploring researchable issues or undertaking applied research projects. They are briefly motivated as follows:

- *Understanding Emerging Economy SMMEs Environment*

Understanding the business environment entails establishing sound knowledge about, for example, the challenges, opportunities, value creation systems, stakeholders and their roles in the business operation of emerging economy SMMEs (i.e. the ecosystem).

Such an understanding is required to enable the UTD to research relevant issues with regard to the value propositions that are associated with the *business solutions* that are developed by its researchers, and appropriate *business models* for deploying them (as well as appropriate *business processes* for supporting them) are incorporated.

- *Understanding People-Technology Interactions*

Understanding people-technology interaction entails establishing sound knowledge on the dynamics of the interfaces between people and technology solutions in terms of usability of such solutions and perceptions of the value offered.

Such an understanding should provide the basis for ensuring that business solutions that are researched and developed within the UTD are appropriate to the wide variety of potential users groups and appropriately leverage relevant ICT infrastructures.

- *Understanding Solutions Deployment Concerns*

Understanding business solutions deployment is concerned with establishing sound knowledge about the infrastructural and commercial issues that are related to deploying ICT solutions into such a diverse and resource constrained group.

Such an understanding should provide the basis for enabling the development of business solutions that are relevant to the commercial and infrastructural concerns of emerging economy SMMEs.

#### 4 The SAP Meraka UTD Research Framework

Figure 2 depicts the research framework, which is an extension of the research agenda (on a top-down fashion). It defines relationships between the research agenda and the operational aspects of fulfilling the objectives of SAP Meraka UTD. The purpose of the research framework is to facilitate the understanding of the state of research activities being undertaken within the SAP Meraka UTD, with regard to their contribution in pursuing the overall research agenda.

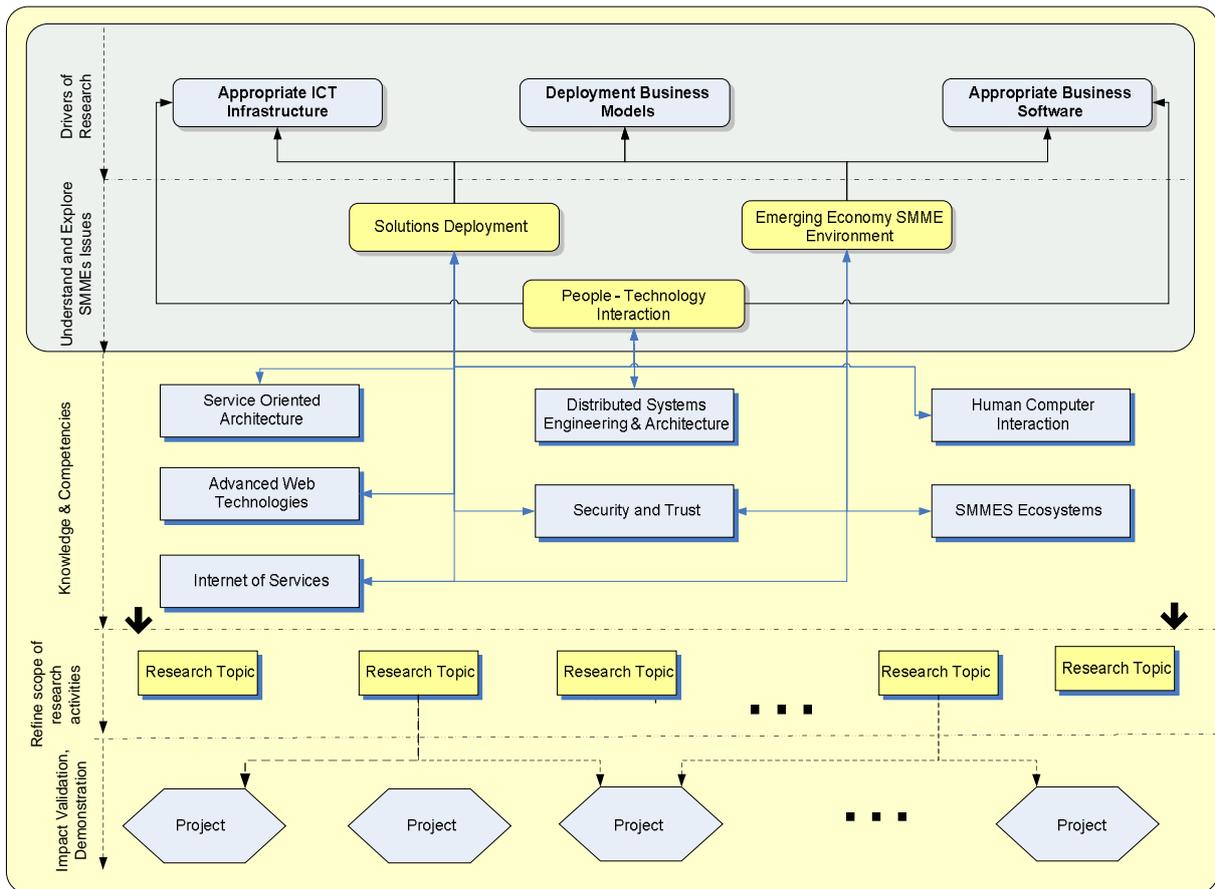


Figure 2: SAP Meraka UTD Research Framework

In order to illustrate how the research framework is used we start by explaining the relationships between the various concepts as defined in section 2. The research field concept provides a good starting point as it represents the capacity (in terms of competencies and knowledge base) of the UTD to pursue its objectives. The following illustrates:

According to the expertise and interests of researchers within the UTD, up to seven research fields have been identified through which issues that are worthwhile researching with regard to any of the identified research areas will be established. Each of the identified research fields within the framework is briefly motivated as follow:

- Knowledge and competency in *Service Oriented Architecture*: The new trend in providing software as a service will be the main driver of this research field. Research in this field will be based upon the various research areas of concern defined as well as the three research themes identified within the research agenda.
- Knowledge and competency in *Distributed Systems Engineering and Architecture*: This field is comprised of distributed Software systems as well as Networking (as software/middleware and architecture). Research in this area will support the research agenda in the sense that issues related to the economics of ICT infrastructure; the deployment of SMMEs applications in a distributed environment as well as the architecture of low cost ICT devices and connectivity will be researched into.
- Knowledge and competency in *Human Computer Interaction*: Various aspects on SMMEs business solutions utility and usability will be researched under this field. The design and conceptualization of intelligent and adaptable user interfaces that take into

account cultural aspects, language barriers and gender influences of end-users will be considered in identifying research topics in this field.

- Knowledge and competency in *Advanced Web-Technologies*: This field will be valuable in providing advanced web based solutions for the automation of collaborative solutions aiming at improving SMMEs' operations in emerging economies based on identified pain points. Issues such as mash-ups, web-service integration and composition will be researched under this research field.
- Knowledge and competency in *Security and Trust*: This field will be responsible for looking into the various security and trust issues related to systems (software and hardware). One of its major contributions will be that of security and trust of services in general and web-services in particular.
- Knowledge and competency in *SMMEs Ecosystems*: The understanding and characterization of patterns of interactions amongst stakeholders within the SMMEs environment as well as challenges and opportunities offered by the establishment of such an ecosystem will be researched under this field. Outcomes from research topics within this field will form the basis for the prototyping of solutions from fields such as advanced web-technologies, SOA, etc...
- Knowledge and competency in *Internet of Services*: This field is of strategic importance within the ICT community in general (future of the Internet, Internet of Things, Internet of the future, etc.) and had prompted us to have it as one of the key elements in finding business solutions for SMMEs in emerging economies. Issues related to social networking, virtual enterprise, service composition, etc. will be researched within this field.

Having established the key competencies and body of knowledge required by the UTD in order to fulfil its strategic objectives towards providing business solutions that could contribute to the sustainability and growth of SMMEs in Emerging Economies, research topics that support each field within the framework will be defined according to the short term objectives of the UTD as well as its human resource capabilities. Research topics will then be defined to pursue answers and solutions to uncovered issues, in the context of the various research themes (and associated research areas thereof). While those answers and solutions will be regarded as research outcomes, the pursuance of real-life solutions will be based on impact validation and demonstrations that will be undertaken through a research project.

The following is worth noting about the operational aspects of the research framework:

- *Research Topics*

Topics are developed by researchers with an interest in pursuing a specific narrowly focused challenge, and within the joint ambit of a particular research field, research area and research theme. Some valid research topics may, however, not find immediate "homes" in research projects but yet be worthwhile pursuing in anticipation of contributions to future work. Examples of such topics would include masters and PhD studies which are not yet aligned with existing projects as well as exploratory studies to establish preliminary research area "state of practice" and research field "state of the art" in preparation for new projects.

- *Projects*

Projects are undertaken to gain, and advance knowledge on specific issues related to any of the three identified research areas, and to provide answers or solutions to the issues in

the context of any of the three research themes. Important aspects of research projects from this perspective are validation of issues and solutions through real life scenarios and demonstration of impact. In this regard research projects will tend to be undertaken in the form of consortia aimed at involving targeted SMME user communities. External research partners will also be an important feature of research projects so as to leverage complimentary knowledge with regard to the inevitable gaps in the research areas.

The suggested framework has been deliberately conceived so as to distance itself from providing concrete research topics as well as projects. An explanation to this approach is based upon the fact that, research topics and projects will always be variable in numbers, and will be defined strategically by researchers within the UTD so as to reflect trends and uncovered issues informed by the various challenges and opportunities within each research field. Of course, research fields may also vary based on available body of knowledge that make up the UTD in terms of expertise. However, the suggested research fields have been identified by looking at the trends, opportunities and challenges within the ICT industry globally in general and in Emerging Economies in particular. Nonetheless, a range of research topics and research projects aligned to the research framework have already been identified. For the purpose of having a clear idea on expertise requirements of the UTD, we briefly list those topics and projects as well as their alignments thereof in the next section.

## 5 Current UTD research topics and projects

In this section, we provide a list of research topics and associated research projects that have been identified for the purpose of pursuing research in the SAP Meraka UTD. Research topics in this context are considered as R&D exercises that can be addressed by candidate researchers, whereas research projects are merely associated with real-life research activities aiming at providing answers to challenges faced by SMMEs in Emerging Economies.

Investigations on current challenges faced by SMMEs in emerging economies enabled us to identify key projects that need to be addressed in a relatively short period of time in order to contribute to SMMEs sustainability and growth. A brief description of the identified projects follows:

- The project Novella (appropriate business software solutions for SMMEs): The project will determine the needs of SMMEs for Business Software Solutions. The study will support the conceptualization and possible development of prototypes of novel solutions to meet identified needs.
- The project Actor (Access to resources by SMMEs): The project seeks to use ICT as a driver for facilitating access to resources (finance, infrastructures, information, etc.) by SMMEs in emerging economies. The concept of a virtual platform (Web-portal, web services, and intelligent services) for facilitating access to resources by SMMEs will be researched into.
- The Project C&C (Communication and Collaboration): The aim is to identify and understand business communication and collaboration patterns amongst SMME on one hand and between SMMEs and Large Enterprises on the other hand. The project will also look at the possibility to use ICT to facilitate such communication and collaboration in order to add value on the productivity of SMMEs in Emerging Economies.
- Projects Alligator and More Value (SMMEs business process and models): seek to determine the "best ways" to operate an SMME in an emerging economy. Based on this

investigation, the project will then determine how these "best ways" should drive the ICT strategy to be employed by SMMEs.

As previously mentioned, interdisciplinary principles will prevail when conducting projects within the SAP Meraka UTD, in that projects span across several research fields. Moreover, the fact that projects were identified by relying on SMMEs pain points made it possible to also identify a short list of relevant research topics of which outcomes could impact on identified projects.

The table below provides a list of research topics identified within the UTD as well as their associated research projects. While projects will be undertaken based on some outcomes from research topics, it is worth mentioning that they ought to involve role-players from the industry. The fact that a single project is associated to more than one research topic (and therefore more than one research field) materializes the interdisciplinary nature of research activities within the SAP Meraka UTD. Therefore, while a narrowly focused research topic could be undertaken by a single researcher, a research project will be undertaken by a team of which members span across a variety of research fields within the SAP Meraka UTD and even in some circumstances external stakeholders.

<b>Research Fields</b>	<b>Research Topic</b>	<b>Associated Research Projects</b>
SMMEs Ecosystems	<ul style="list-style-type: none"> <li>1- Impact of policies and regulations on sustainability and growth</li> <li>2- Towards a unified classification of SMMEs business models and their value-proposition</li> <li>3- Taxonomies of SMMEs business processes in Emerging Economies</li> <li>4- Enterprise business communication patterns</li> <li>5- Enterprise business collaboration patterns</li> <li>6- Importance of business software on business profitability</li> <li>7- Opportunities and Challenges for SMMEs sustainability and growth</li> <li>8- Governing and Managing Knowledge in Public Sector Shared Services: A Case Study of South Africa</li> <li>9- An ICT Model providing 2nd Economy SMMEs access to Governmental financial resources promoting Sustainable Development and Growth</li> <li>10- Limitations of Access to information, communication and technological infrastructures by SMMEs owned by Women in Gauteng: A case study in Pretoria</li> <li>11- A service system approach to enterprise architecture</li> </ul>	<b>Novella, ACTOR, C&amp;C, Alligator, More Value</b>
Service Oriented Architecture	<b>To be identified</b>	<b>Novella, ACTOR, C&amp;C</b>
Human Computer Interaction	<ul style="list-style-type: none"> <li>1- Design of adaptable and intelligent user interface for Business Software</li> <li>2- Technology acceptance of business software</li> <li>3- Impact of culture on technology usage and adoption</li> <li>4-The Impact of Adaptive User Interfaces on the Usability of ERP Systems for SMMEs</li> <li>5- The effects of Improved Usability on growth of E-Commerce in South Africa</li> <li>6- ERP solutions amongst manufacturing SMMEs in South Africa: Is perceived complexity affecting acceptance?</li> </ul>	<b>Novella, ACTOR, C&amp;C</b>
Distributed Systems Engineering and Architecture	1- Towards a virtual platform for the deployment of Enterprise Applications	<b>Novella, ACTOR, C&amp;C</b>
Security and Trust	<ul style="list-style-type: none"> <li>1- challenges in securing web-service applications</li> <li>2- Service-Level Agreements in binding web-services</li> <li>3- Guiding the anonymisation of microdata: Balancing privacy and information utility</li> <li>4- The Economics of Information Security</li> </ul>	<b>Novella, ACTOR, C&amp;C</b>
Internet of Services	<ul style="list-style-type: none"> <li>1- Towards the design of a virtual platform for service interoperability</li> <li>2- Pattern-Based Approach for Web Service Composition Recovery</li> </ul>	<b>Novella, ACTOR, C&amp;C</b>
Advanced Web-Technologies	<ul style="list-style-type: none"> <li>1- Web-based solutions for facilitating SMMEs Access to Resources</li> <li>2- Web based Solutions for facilitating Communication and Collaboration</li> </ul>	<b>ACTOR, C&amp;C</b>

The table lay down the basis for the identification of key expertise within the SAP Meraka UTD. As for any research institution, key role players are respectively Chief Researchers, Principal Researchers, Senior Researchers, Researchers and Project Managers. Additional role players are candidate researchers (PhD) and Junior Researchers (Master's Interns). A brief description of the role of each role player follows:

- Within the UTD, Research Projects will be monitored and evaluated by Project Managers, whose role will be to ensure that a given project is successfully completed within budget and on time.
- The overall UTD research activities will be managed by a Chief researcher whose role will be to ensure that all activities undertaken by researchers within the UTD meets its strategic research objectives and is aligned to the research agenda (and therefore the research framework). Many other tasks will be assigned to the Chief researcher such as periodically refine the research roadmap, scouting for expertise, etc...
- Principal researcher will be associated to a given body of knowledge within the research framework (research field). He/she will have to constantly refine the various research topics associated to the research field, while maintaining their relevance based on the research areas as well as research themes.
- Senior Researchers will be responsible for one or more research topics within a given research field. His/Her role will be to provide leadership and expertise required for the topic, guiding along that process all researchers in the value chain towards the path of achieving excellent results during the course of activities associated to the topic.
- Researcher will conduct research and will be supported by a Senior Researcher (and therefore a Principal Researcher) in the value chain. A Researcher may be a PhD intern or an establish researcher within the UTD who have shown sufficient expertise in his/her field of study and can conduct independent research. Of course, PhD candidates will be submitted to registration requirements from universities as well as the research interest of the supervisor from the university. Nonetheless, the research topic to be chosen should reflect (up to some extent) the SAP Meraka UTD research agenda.
- Junior Researchers, will be responsible for a narrowly scoped research topic and will be closely supervised by senior researchers (inter alia researchers) in the value chain.

Based on the above, the suggested strategy for the identification and recruitment of research staff should be subject to the short term objective of the UTD. The management could rely on this research agenda in order to take strategic decisions regarding recruitment of researchers.

The conclusion and further directions to this report is provided in the next section.

## 6 Conclusion and further directions

In this report, we have suggested a research agenda of the SAP Meraka UTD on addressing issues pertaining to the broad challenge of “Business solutions for emerging economy SMMEs”. A high-level view of the agenda was presented depicting broad research themes and areas of concerns. An extension of the research agenda referred to as the research framework was also suggested depicting research fields that form the basis for the body of knowledge required by the UTD to pursue research challenges prescribed by the agenda. The framework also showed the relationship between research fields and research topics and also between research topics and research projects. The alignment of research topics and research projects revealed that while research topics could be conducted by single individuals, research projects will be conducted by a team of researchers so as to reflect the interdisciplinary nature of the UTD. The present report is subject to regular refinements in the sense that more topics, projects and themes may be added as challenges are unpacked.

As a matter of future work, we need to allocate current in house resources to projects and research themes and continue with basic research activities for those of the research topics that have been accepted by universities. Once team allocation will be completed, a research roadmap

will be written showing challenges associated to each research topics and projects as well as the timeframe required to unpack such challenge.

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