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ITS 4 LAND
innovations for land tenure

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Abstract:
An overview of its4land kick-off workshop activities, press, and outcomes

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KU Leuven (KUL)
Westfaelische Wilhelms-Universitaet Muenster (WWU)
Hansa Luftbild AG (HL)
Institut d'Enseignement Superieur de Ruhengeri (INES)
Bahir Dar University (BDU)
Technical University of Kenya (TUK)
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Executive Summary

This report gives an overview of the its4land kick-off workshop, press related activities, and outcomes. The workshop was conducted on February 26th 2016 in Enschede, Netherlands. All consortium partners were represented: 30 participants attended across the day. Other notable participants included a representative from the European Commission, Kadaster Netherlands, and Rubicon Geosystems. its4land was presented and discussed in terms of its relationship to the EC Horizon 2020 research program, aims, innovation, approach, and intended outcomes. Each work package was unpacked and linkages between work packages confirmed and further refined. Mainstream and local media outlets covered the event. Social media tools were also used to support coverage. The workshop is considered to have provided a firm platform for commencing both the content and administrative related work packages of its4land – and for more broadly commencing interactions with community, government, and private sector stakeholders in sub Saharan Africa, as well as the international land sector, the geospatial technology sector, and academia.

Contents

1. Introduction

its4land is a European Commission Horizon 2020 project funded under its Industrial Leadership program, specifically the 'Leadership in enabling and industrial technologies – Information and Communication Technologies ICT (H2020-EU.2.1.1.)', under the call H2020-ICT-2015 – and the specific topic – 'International partnership building in low and middle income countries' ICT-39-2015.

Its4land aims to deliver an innovative suite of land tenure recording tools that respond to sub Saharan Africa's immense challenge to rapidly and cheaply map millions of unrecognized land rights in the region. ICT innovation is intended to play a key role. Many existing ICT-based approaches to land tenure recording in the region have failed: disputes abound, investment is impeded, and the community's poorest lose out. its4land seeks to reinforce strategic collaboration between the EU and East Africa via a scalable and transferrable ICT solution. Established local, national, and international partnerships seek to drive the project results beyond R&D into the commercial realm. its4land combines an innovation process with emerging geospatial technologies, including smart sketchmaps, UAVs, automated feature extraction, and geocloud services, to deliver land recording services that are end-user responsive, market driven, and fit-for-purpose. The transdisciplinary work also develops supportive models for governance, capacity development, and business capitalization. Gender sensitive analysis and design is also incorporated. Set in the East African development hotbeds of Rwanda, Kenya, and Ethiopia, its4land falls within TRL 5-7: 3 major phases host 8 work packages that enable contextualization, design, and eventual land sector transformation. In line with Living Labs thinking, localized pilots and demonstrations are embedded in the design process. The experienced consortium is multi-sectorial, multi-national, and multidisciplinary. It includes SMEs and researchers from 3 EU countries and 3 East African countries: the necessary complementary skills and expertise is delivered. Responses to the range of barriers are prepared: strong networks across East Africa are key in mitigation. The tailored project management plan ensures clear milestones and deliverables, and supports result dissemination and exploitation: specific work packages and roles focus on the latter.

its4land officially commenced on February 01 2016. To formalize the commencement, a kick-off workshop was conducted at the ITC Faculty, University of Twente, Enschede, Netherlands on February 26th 2015. This report aims to compiles artefacts, outcomes, and key references relating to the day. It also acts as the basis for Deliverable 2.1 'Kick-off Workshop'. As such, it is the first Deliverable of Work Package 2: Get Needs. The main objective of this Work Package is to capture the specific needs, market opportunities, and readiness of end-users in the domain of land tenure information recording in order to support design and modelling activities in the follow-up work packages.

This report maintains a simple structure, and merely presents the agenda (Section 2), key discussion points and action items (Section 3), relevant media and press (Section 4), and provides references to where further content from the day can be obtained (Section 5). Conclusions are provided in the final section (Section 6).

2. Agenda

The agenda for the kick-off day is presented in Table 1. The workshop was condensed to a single day – as mini-kick-off meetings planned for execution in the case countries, Rwanda, Ethiopia, and Kenya are also planned to occur within the first 6 months of the project.

Table 1. its4land kick-off meeting agenda

08:30 - 09:00	Arrival & Coffee (30')	
09:00 - 09:05	**Opening and Welcome (05')** Erna Leurink and Rohan Bennett	ITC/UT
09:05 - 09:25	**its4land – Setting the Scene (20')** Berhanu Alemie, Mireille Biraro, Kaspar Kundert, Gordon Wayumba	BDU+INES +ESRI+TUK
09:25 - 09:45	**its4land – Project Overview (20')** Rohan Bennett	ITC/UT
09:45 - 10:15	**EC Project Support and FIRE (30')** Georges Lobo, EC Project Officer	EC
10:15 - 10:30	Coffee & Morning Tea (15')	
10:30 - 11:00	**WP1 - Project Management (30')** John Horn, Glen Sleebos, and Rohan Bennett	ITC/UT
11:00 - 12:30	**WP2 - Get Needs (90')** Joep Crompvoets, Bruno Broucker, Valerie Pattyn, Ine Buntinx	KUL
12:30 - 13:15	Lunch (45')	
13:15 - 13:45	**WP3 - Draw and Make (30')** Angela Schwering, Carl Schultz, Chipofya Malumbo, Jan Sahib	WWU
13:45 - 14:15	WP4 - Fly and Create (30') Claudia Stocker, Jaap Zevenbergen, and Team	ITC/UT
14:45 - 15:15	**WP5 - Automate it (30')** Sophie Crommelinck, George Vosselman, and Team	ITC/UT
15:50 - 15:30	Coffee Break (15')	

15:30 – 16:00	WP6 - Publish and Share (30') Christian Timm and Tarek Zein	HL
16:00 - 16:15	**WP7 - Govern and Grow (15')** Joep Crompvoets, Bruno Broucker, Valerie Pattyn, Ine Buntinx	KUL
16:15 - 16:30	**WP8 - Capitalize (15')** Tarek Zein and Kaspar Kundert	HL + ESRI
16:30 - 17:00	Other Issues: Data Management, Dissemination, Exploitation, and Next Steps (30') Rohan Bennett, Markus Gerke, Tarek Zein	ITC/UT + HL
End of Day – Drinks and Dutch Hapjes		

3. Discussions and Outcomes

Consortium members from its4land and other project stakeholders, totaling 30 participants, converged on Enschede, Netherlands, home of the ITC Faculty of the University of Twente – on 26th February 2016, to kick-off the project through a workshop of presentations and related discussions (Figure 1).

Figure 1. its4land kick-off meeting

The meeting followed the agenda as planned. ITC Managing Director – Erna Leurink – got proceedings underway. Georges Lobo, the European Commission Project Officer was present and introduced EC standards, the FIRE framework, and upcoming opportunities and events.

On its4land, Mireille Biraro (Rwanda), Berhanu Alemie (Ethiopia), Gordon Wayumba (Kenya), Kaspar Kundart (Rwanda), and Monica Lengoiboni (Kenya) set the scene with outlines of the key land tenure challenges in specific case locations across the countries.

Rohan Bennett, Project Coordinator, provided a broad overview of its4land ambitions, approach, and intended impact. John Horn, Project Manager, and Glen Sleebos, Finance Manager, covered key administrative aspects and requirements. Markus Gerke, also from UT, provided an overview of data management plans and strategies.

Following the broad introduction, the team set about unpacking the 8 work pages. Joep Crompvoets and his team from KU Leuven covered the lynchpin 'Get Needs' Work Package (WP) 2. Angela Schwering and Carl Shultz, WWU Munster, provided an overview of the potential power of smart sketchmaps in 'Draw and Make' (WP 3). UAVs – 'Fly and Create' (WP 4) and Feature Extraction – 'Automate it' (WP 5) were delivered by new PhDs Claudia Stöcker and Sophie Crommelink, from University of Twente. Christian Timm, Hansa Luftbild, introduced the second lynchpin work page – 'Publish and Share' (WP 6). 'Govern and Grow' (WP 7) and 'Capitalize' were respectively introduced by Joep Crompvoets and and Tarek Zein of Hansa Luftbild.

A complete summary of the key discussion items and action points resulting from the opening and welcome, setting, the scene, project overview, EC overview, and work-package descriptions are provided in Annex 1 'Kick-off notes'.

4. Press and Social Media

Both conventional and social media were used to cover the event. Conventional media included stories in newspapers (i.e. Westfaelische Nachrichten) and institutional news pages (i.e. University of Twente) (Figure 2). All specific stories and are listed and detailed on its4land.com.

Figure 2. its4land in conventional media outlets

Social media usage included activation and usage of the its4land twitter account (https://twitter.com/its4land1) and institutional and personal posts on Facebook, LinkedIn, and Twitter (Figure 2) (e.g. https://www.facebook.com/ITC.UTwente/posts/978605252227105). The its4land twitter account links to major EC initiatives included FIRE, Horizon 2020, etc. The dissemination and communications plans being developed, as part of WP1 will be used to broaden its4land online followers. These plans are finalized within the first 6 months of the project.

Figure 3. Sample kick-off social media covered

5. Further Resources

More information from the its4land kick-off meeting can be obtained from the following locations:

- All presentation slides, media links, photos, and agenda information stemming from the event are available online at: its4land.com

- Audio and video content of the opening session is available from project coordinator, Rohan Bennett, contactable at r.m.bennett@utwente.nl - and will be subsequently be made available via the its4land website when the its4land data management tool is online.

- Any further information required regarding the event can be gained via contact with the project coordinator, Rohan Bennett, contactable on r.m.bennett@utwente.nl

6. Conclusion

In conclusion, its4land formally kicked off on February 26th 2016 in Enschede, Netherlands. This document aimed to provide evidence of the kick-off and the outcomes stemming from it. At the event, all consortium partners were represented:30 participants attended across the day. The project was presented and discussed in terms of its relationship to the EC H2020 program, aims, innovation, approach, and intended outcomes. Each work package was unpacked and linkages between work packages confirmed and further refined. Mainstream and local media outlets covered the event. Social media tools were also used to support coverage. The workshop is considered to have provided a firm platform for commencing both the content and administrative related work packages of its4land.

Annex 1. Kick-off Notes

Notes its4land Kick-Off Meeting

Date: 26th February 2016
Location: 0-142/0-146

Present:
ITC/UT: R. Bennett, J. Zevenbergen, G. Vosselman, F. Nex C. Stöcker, S. Crommelinck, M. Gerke, M. Lengoiboni, J. Horn, G. Sleebos P. Weber (notes)
KU Leuven: J. Crompvoets, I. Buntinx
Hansa Luftbild: P. Hartfield, T. Zein, Ch. Timm
WWU Münster: C. Schultz, A. Schwering, M. Chipofya, J. Sahib
BDU Ethiopia: B.K. Alemie
TUK Kenya: G. Wayumba (joined one hour after the start of the meeting)
INES Rwanda: M. Biraro
ESRI Rwanda: K. Kundert
Leiden: V. Pattyn
EC: G. Lobo
Guests: C. Meijer (Kadaster International), T. Rodrigues da Silva Esteves (UT / first half of the meeting)

Apologies: B. Broucker

1. **Opening & Welcome** (E. Leurink & R. Bennett)
   J. Horn, the facilitator of today's kick-off meeting, welcomed the core project team and introduced E. Leurink, ITC's Managing Director. E. Leurink then welcomed the its4land group, conveying ITC Directorate's congratulations for winning this project. R. Bennett, the project coordinator, then welcomed G. Lobo, the EC project officer.

   R. Bennett presented the agenda, which was accepted without changes or additions. See attachment '*its4land_kick-off_agenda*'.

2. **Its4land – Setting the Scene** (B.K. Alemie, M. Biraro, K. Kundert, G. Wayumba/M. Lengoiboni)
   B.K. Alemie of Bahir Dar University introduced himself and presented the Ethiopian field cases. For his presentation see attachment '*Setting the scene from the Ethiopia perspective*'.

   M. Biraro of INES Ruhengeri introduced herself and presented the Rwandan field cases. For her presentation see attachment '*Setting the scene in Rwanda*'. K. Kundert then added his perspective of the Rwandan cases, where mainly handheld devices are used for land registration, making the process both time intensive and expensive.

   M. Lengoiboni presented on behalf of G. Wayumba of TUK, the Kenyan field cases. For the presentation please see attachment '*Pastoralists land rights dependent on movement to pastures and water*'.

3. **Its4land – Project Overview** (R. Bennett)
   R. Bennett presented the project overview. Its4land falls under the H2020-ICT-2015 framework, with the topic of international partnership building in low and middle income countries. The aim of the project is to develop an innovative suite of land tenure recording tools inspired by geo-information technologies, which respond to end-user needs and market opportunities in Sub-Saharan Africa, reinforcing an existing strategic collaboration between EU and East Africa; or, put simply, creating seven new tools to make land rights mapping faster, cheaper, easier, and more responsible. In this project, countries, disciplines, technologies and societal layers, with an intended impact at multiple levels, mainly building upon fit-for-purpose land administration, mapping at grass root level and aiming at realizing innovation theory.

   For the complete presentation see attachment '*its4land Project Overview*'.

4. **EC Project Support and FIRE** (G. Lobo, EC Project Officer)
   G. Lobo introduced himself and presented he Future Internet Research and Experimentation (FIRE) initiative. He invited the project partners to take part in the Net Futures conference in Brussels and the ICT Proposers Day in Bratislava, as well as asked for suggestion for interesting events.

   For the complete presentation see attachment '*Project Support and FIRE*'.

Concerning new rules for H2020, G. Lobo explained that all processes are now fully electronic (documents, forms etc.), including new IT tools, deliverables on PP, official communication via PPGMS and continuous reporting. He then also underlined the importance of all partners keeping their timesheets (for possible auditing). Additionally, the Innovation Radar is supporting innovators by suggesting a range of targeted actions, e.g. assessing high potential innovators and innovations, providing guidance and supporting innovators through EU (and non-EU) funded entrepreneurship.

J. Crompvoets asked what is suggested with the collaboration with the FIRE network, and G. Lobo explained that taking an active part in the FIRE Forum is advisable, contacting / consulting experts and taking part in the online consultations, as well as relating project events to other FIRE partners etc.

M. Gerke asked whether all FIRE actions are within an European context, to which G. Lobo replied that this is not the case and that there are connections to Brazil, South Africa and other non-European countries.

C. Meijer expressed his wish to obtain more details about The Internet of Things project in Sub-Saharan Africa, but unfortunately, the newest details of the project are not known yet (but can be found online).

5. **WP1 – Project Management** (J. Horn, G. Sleebos, R. Bennett)
R. Bennett introduced J. Horn, the Project Manager, and G. Sleebos, ITC Financial Officer. J. Horn then presented the WP1. For the complete presentation see attachment '*Work Package 1 – Project Management*'.

J. Horn informed the project partners that the EC advance payment of 45% of the total project budget has been received (by ITC) and has been transferred pro rata to each partner. The next milestone is the first annual report followed by an interim report and concluded with a final report. For the transfer of the next payment, partners are expected to hand in a quarterly breakdown of work time per staff member for each work package. In addition, it is crucial to keep time sheets, both for claiming expenses and for a possible audit at the end of the project period (up to 5 years after the end date of the project). For the yearly reporting, ITC will ask the partners to hand in the original documentation, signed and stamped. Concerning reimbursement, each partner has submitted an average monthly salary rate, including the basic salary plus social cost; this rate has been established at the commencement of the project and the next step is to update the data and establish the average monthly rate based on accurate monthly rates of the persons involved in the project.

AP 26.02.16.01: financial requirements for EC reporting are to be written down in detail by UT-ITC and forwarded to all project partners for future handling, after preparation by their respective financial officers.

J. Lobo explained that when an EC review is scheduled, there will be some time given for the project partners to prepare, with the reviewers reading the reports and discussing details with G. Lobo before a meeting is scheduled for discussion and questions. After that, a first feedback is given, then a consolidated report is handed in to G. Lobo. This report has to be accepted, usually within 2 months, before the final payment will be executed. G. Lobo will propose a number of experts to the project partners, who can then review the names before the candidates are named for the Review Committee.
After the project ends, no more costs can be claimed, except material costs and expenses related to the review.

J. Horn emphasized that ITC will require from all partners to follow up on the very strict reporting deadlines, in order to ensure that the consortium can hand in all documentation to the EC complete and on time. Concerning the reporting, the costs have to be broken down not only per year, but per activity per Work Package, in order to be eligible for EC accounting.

A. Schwering asked how the budget for the accounting periods can be broken down / calculated from the available (more general) budget. J. Horn answered that UT-ITC will provide more budget details to all partners, to ensure that financial reporting happens conform to the EC rules.

J. Horn asked G. Lobo whether the man month or the budget has precedence, in case there is a discrepancy between the calculated and real average salary costs. G. Lobo answered that there is no need for detailed amendment with the EC, as long as the differences can be evened out internally, between the partners (e.g. activities being moved from one partner to another, with partners 'filling in' when needed in other Work Packages).

J. Horn asked all project partners to raise all their financial questions as soon as they arise, rather than wait until before the reporting deadline. ITC will then, together with the EC, answer all questions for clear and concise financial reporting.

R. Bennett reported that the consortium agreement has been received from the UT for the Dean to sign, and signed copies will be forwarded to all partners as soon as available. Furthermore, he informed everybody that candidates for the Advisory Board have been submitted; these persons will be invited and as soon as the AB members are finalized,

the names will be forwarded to all partners, as well. The project Management Team has been set up with one representative from each partner (for details see the presentation by R. Bennett).

For communication, the consortium will make use of multiple channels, tailoring specific communication tools for specific situations / partners. The project management tool is SIGMA, where all official documentation is available; the its4land website (https://its4land.com) is set up and will be updated, with each partner having an account for uploading information.

M. Gerke explained the details of the Data Management Plan (DMP) for the project, describing the handling of research data during and after the project, details of data collection, processing and generation, the methodology and applied standards, whether data will be shared /made open access and how and how data will be curated and preserved (security, backup). For this, ITC ordered a NAS server with access for all project partners. A first draft (by ITC, using the DCC tool) of the DMP will be made available by April 2016 as a working/living document with constant updates for every new dataset made available. For details of the presentation see attachment 'Data Management Plan'.

G. Lobo mentioned that there are European Cloud Services available (for free, www.hubic.com), which can be used by the project. M. Gerke answered that this is an interesting option, especially for data backup.

6. **WP2 – Get Needs** (J. Crompvoets, B. Broucker, V. Pattyn, I. Buntinx)
J. Crompvoets presented on WP2. For the details of the presentation see attachment: '*WP2 – Get Needs*'.

B.K. Alemie then presented the case studies selection criteria for Ethiopia, namely the Addis ena Gulit rural area and the peri-urban areas of Bahir Dar city. Ch. Timm asked whether lowland areas be included in the case study selection, and B.K. Alemie explained that the two mentioned areas were selected for 'easy accessibility', as well as other administrative criteria.

G. Wayumba then highlighted the case locations for Kenya, where Samburu, Kisumu, Narok, Turkana county, Pokot county and Kaijado county were suggested. Looking at including a variety of areas, as well as easy accessibility, it has been decided to choose Samburu and Kisumu as case study locations.

M. Biraro presented on the case location choices for Rwanda, namely Eastern Province, Northern Province and Kigali, suggested for variety and accessibility. K. Kundert added Musanze (semi-urban) and Gishwati forest (hilly, new NP in development) as possible options for case locations in Rwanda.

For the stakeholders audit / classification, the project partners need to identify the actors of each Actors Class, collecting their contact details (creating a contact database) and identifying key actors for each geospatial technology and each country. This will be chiefly the task of the Southern partners

For the completion of field data collection activities, J. Crompvoets suggested changing the original deadline to month 18, in order to facilitate a better / more fruitful fieldwork (more time will thus be available) and therefore better data collection can be achieved. Additionally, for the Requirements Synthesis, an extension of the deadline to month 21 has been suggested. With these two deadlines changed, the date of the final reporting / deliverable will nevertheless remain the same.

KU Leuven will appoint one PostDoc staff for two years, starting 1st June 2016, to work on the tasks of WP2.

Concerning the changes applied to the 'Ethics' package (which is now in WP9), G. Lobo explained that this change applies to all H2020 projects, and that mainly deliverables earlier falling under different WP are now to be uploaded under WP9 (without additional time/budget available for this WP).

G. Wayumba remarked that these meetings are very helpful to reach a better understanding of the WP details and suggested having workshops in the (three) African countries as well, in order to facilitate better understanding and communication between all involved staff from each partner.

M. Chipofya asked whether the 'actors' in the presentation will at the end of the project interact with our output/tools. J. Crompvoets explained that in this framework, the 'actors' are the potential users of e.g. the sketch maps. While the CEO of an organization might decide whether a sketchmap / tool is useful, the aim will be contacting the final users for data collection.

V. Pattyn raised the topic of language issues and J. Crompvoets answered that ideally, the projects will have strong political support, which means having a local contact person for each case location, to support the project partners in their field activities. The contributions of the Southern partners (universities and their staff) is considered crucial for the success of the project activities.

Answering R. Bennett's question on the used approaches, J. Crompvoets underlined that different approaches will be tested for each case location, making sure that the best approach for each situation / location is found and applied.

7. **WP3 – Draw and Make** (A. Schwering, C. Schultz, M. Chipofya, J. Sahib)
   A. Schwering introduced the team from Münster University and presented WP3. C. Schultz continued the presentation with the outline of the WP process overview, participants, sketch interface and underlying ontology. The WP3 is expected to address potential social challenges early on, start developing the ontology using an amended LADM and commence the prototyping of visual languages.

   For the complete presentation see attachment '*WP3 – Draw and Make*'.

   J. Zevenbergen mentioned that UT-ITC already has the STDM version, during which a lot of work on ontology has already been done, as well as the work A. Frank has already carried out in this sector.

   M. Chipofya asked for clarification concerning the regular reporting; while the previously discussed one-year report was of purely financial nature, G. Lobo answered that with all technical details included in the deliverables, the reporting can be straightforward (perhaps pointing to deliverables, papers etc.). It has been suggested to have a reminder system in place, to make sure that reports are handed in to the EC on time. Advising on usual complaints from reviewers, G. Lobo indicated that it is important not to repeat the exact same description in the reports and deliverables.

   M. Gerke asked how one can show / demonstrate that a specific goal (e.g. sketch map generation / collection) has actually been achieved. This can be done through different means, e.g. a software (prototype), an interface, a report or whatever 'evidence' fits (e.g. as used in FP7 projects).

   C. Meijer wanted to know whether the ontology can be extended, and adjusted to specific situations / case localities. C. Schultz underlined that this indeed will be the case.

8. **WP4 – Fly and Create** (C. Stöcker, J. Zevenbergen & team)
   C. Stöcker introduced herself as (one of) the two new project AiOs at ITC and presented WP4. The outputs of WP4 will be input for WP 5 (basemap for boundary detection, orthomosaic, point cloud, DSM) and WP6.

   For the complete presentation see attachment '*WP4 – Fly and Create*'.

   G. Wayumba remarked that in some areas, e.g. Samburu, rigorous ground control might be a crucial issue, while in other areas e.g. Kisumu, ground control can be offered. E. Rubinov explained that different (commercial) options are available and that the project should consider and discuss its needs carefully before deciding on which option to use. T. Zein emphasized the importance of choosing the right geodetic network within which the data will be referenced, especially having a unified system for comparing the data within a case country. G. Wayumba explained that e.g. in Kenya there are legal restrictions for cadastral data measurements and J. Zevenbergen added that for some regions UT-ITC already has PhD research on converting different data to the required legal measurements. Concerning the actual geographic datum to be used it seems that in the SSA countries no uniform approach is taken. It may turn out during the project that it is another advantage of UAV-based ortho imagery that a local adaptation to datum definitions is easily doable.

9. **WP5 – Automate It** (S. Crommelinck, G. Vosselman & team)
   S. Crommelinck the second project AiO at ITC, introduced herself and presented WP5. The expected output of the WP is an algorithm that automatically extracts visual boundary features from orthoimages, DSMs and pointclouds, an algorithm that combines extracted features with those from sketchmaps and existing cadastral maps and the final boundary features (.shp).

   For the complete presentation see attachment '*WP5 – Automate It*'

   G. Wayumba asked for more details about sketchmaps and C. Schultz explained that Sketchmap will include a number of concepts describing a parcel from the person drawing it, and that it is advisable to perhaps define a number of features (e.g. dotted lines etc.) beforehand, to enable the correct (semi-automated) interpretation of the maps. M. Gerke remarked that especially in rural areas, where clear boundaries might be missing, one might like to consider using paint or putting up paper to mark the corners of boundaries. While this might help with interpretation, it is felt that this effort is outside the purpose of the project, namely designing / developing an automated inexpensive tool for surveying parcel boundaries. It appears that each case location might need a different approach. T. Zein remarked that a similar approach of marking boundary corners prior to aerial photography acquisition was used in Montenegro, where neighbors were asked to mark the boundaries together before aerial photography was captured.

   G. Wayumba, supported by M. Lengoiboni, remarked that especially in Kenya's arid and semi-arid land, there are no such boundaries available / visible / used as fences or tree lines etc. the conclusion reached was that each case locality

will need its own specific approach to boundaries / boundary mapping. In order to arrive to the best solution for each area, it is very important to involve the local people / community in the process of defining boundary representation.

C. Meijer remarked that for smaller areas (e.g. the land of one community), it can be organized that people will define their boundaries by using paint or paper etc. but that these efforts need to be well organized in advance, with clear guidelines given to the community on the flight time and area. M. Gerke answered that we will have more than UAV available and that we first should test different options (using targets or not) in different areas. While using targets might help with geo location, this approach might create legal issues, as boundaries are defined before the UAVs are flown. It is preferable to fly the UAVs and later involve the community in defining / correcting / adjusting the boundaries.

Again, the item of differences between the case localities came up, emphasizing the need of good communication between all participants (the WP actors, the WPs and the communities etc.) and a flexible approach to each situation.

Ch. Timm asked whether the two algorithms (to be developed) in the WP5, will be included into the software. The answer to this question is Yes, as they are will be used as input for WP6 – Publish and Share. To facilitate this, WP5 and WP6 need to discuss the tasks on a regular basis and in great detail, in order to orchestrate the efforts of both WPs.

10. **WP6 – Publish and Share** (Ch. Timm, T Zein)
    Ch. Timm presented WP6. The WP includes five key tasks, namely mobile capturing and processing system, integrating qualitative information from Sketchmap into quantitative information, LADM implementation, matching output of mobile capturing and integration of qualitative information in LADM LAS, and training of local staff. The outcome of WP6 is a LAS prototype which will implement the results from WP3, WP4 and WP5, a reference platform for future projects and harmonization of deliveries and milestones.

    For the complete presentation see attachment '*WP6 – Publish and Share*'.

    G. Vosselman wanted to hear more details concerning the open access platform, which ideally will include the results of the activities of all other WPs, suggesting to start working in the 'right' environment from the beginning, rather than submitting deliverables in a format that later needs to be adapted to the requirements of WP6. While the base system has already been developed, at the moment Hans Luftbild is busy adapting it to the needs of a different project. M. Gerke asked for clarification concerning the framework of QGIS (open source, plug ins for interactions etc.) in order to easily integrate ITC's own software into the system, obtaining exact details about the final setup of the system. Especially for the fieldwork it is advisable to work locally (or on an ad hoc local network in the field) and later upload the available data to the cloud / server (perhaps FIRE).

    AP 26.02.16.02: more detailed discussion on the technical details (of data publishing and sharing) are to be scheduled between the WPs before deciding on the best fitting platform.

11. **WP7 – Govern and Grow** (J. Crompvoets, B. Broucker, V. Pattyn, I. Buntinx)
    J. Crompvoets presented, on behalf of B. Broucker, WP7. The objective of the WP is to develop governance models to support the implementation and evaluation of innovative tools and their use in order to meet stakeholders' needs and to create and partially implement a capacity development model in order to strengthen the necessary skills and competencies so that the innovation process can have a sustainable effect.

    For the complete presentation please see attachment '*WP7 – Govern and Grow'*.

12. **WP8 – Capitalize** (T. Zein, K. Kundert)
    T. Zein presented WP8, exploitation and business modelling. The objective of the WP is to develop a sustainable business model for commercialization of the integrated suite of land tenure recording tools, within the end-user markets, dissemination and commercialization of the land tenure recording technology suite. WP8 will commrecialize the results of WP2 and WP7 as market products, which should benefit land tenure in Africa and elsewhere.

    J. Zevenbergen remarked that the market will show itself during the next months / duration of the project; C. Meijer added that while the 'product' won't be ready after the 4 year duration of the project, this product will be launched at the end of this initiative and will adapt to customer needs, as presented on the market. G. Wayumba mentioned the fact that within the EALAN network there are countries which have not yet undertaken any cadastral registration system, and expressed his view that more cooperation opportunities will arise once the project products are on the market. T. Zein explained that while the system resulting from WP6, 'publishing and sharing', is developed on the basis of open source software, the final decision about open source vs a proprietary system is that of the end uses. After the launch of the products / services, the partners still need to discuss the business model, proprietary rights etc. before continuing the development of the services.

    For the complete presentation please see attachment '*WP8 – Capitalize'*.

13. **Other Issues: Data Management, Dissemination, Exploitation and Next Steps** (R. Bennett, M. Gerke, T Zein)
With many of the points already discussed earlier during the kick-off meeting, R. Bennett asked the participants for specific questions concerning points of data management, dissemination, exploitation and the next steps.

S. Crommelinck raised the issue of internal deadlines for WP deliverables vs. final EC deadlines. There might be some differences here i.e. we might want a beta version of an output available to other WPs, even if the final deliverable is not ready yet.

Concerning the project MT meetings, R. Bennett presented the envisaged schedule, with the first meeting already having taken place on 25th February 2016 in Enschede, the Netherlands. The coming meetings are suggested to be scheduled for either April 2016 (Addis Ababa, Ethiopia), or May 2016 (Kigali, Rwanda), or July 2016 (Nairobi, Kenya). The last meeting 2016, in October 2016 is still to be confirmed.

In conclusion, R. Bennett underlined that its4land is an ambitious research project, driven by real societal demands and advancing technical opportunity. Each person in the meeting room brings specific expertize that no one else possesses and each one present has an important role to play - and a great opportunity to learn and grow.

All attachments / presentations are available for download here: http://eostore.itc.utwente.nl:5000/fbsharing/e2sCqQPx
Use the "download folder" button in the upper left corner to retrieve a zip file with all documents.

	Action	Staff	Check
AP 26.02.16.01	financial requirements for EC reporting are to be written down in detail and forwarded to all project partners for future handling, after preparation by their respective financial officers	JH, GS	
AP 26.02.16.02	Schedule more detailed discussion on the technical issues of data publishing and sharing between the WPs before deciding on the best fitting platform.	all	

Annex 2. Signed Participant List

participants its4land kick-off meet, Friday 26th February 2016

UT/ITC	Rohan Bennett	
	Jaap Zevenbergen	
	George Vosselman	
	Markus Gerke	
	Francisco Nex	
	Claudia Stöcker	
	Sophie Crommelinck	
	Monica Lengoiboni	
	John Horn	
	Glenn Sleebos	
	Petra Weber	
KU Leuven	Joep Crompvoets	
(excused)	Bruno Broucker	
	Ine Buntinx	
Leiden	Valerie Pattyn	
EU	Georges Lobo	
Bahir Dar	Berhanu K. Alemie	
TUK	Gordon Wayumba	
Hansa Luftbild	Tarek Zein	
	Christian Timm	
Paul Hartfield	~~F. Müller~~	
ESRI Rwanda	Kaspar Kundert	
INES Rwanda	Mireille Biraro	
Uni Münster	Angela Schwering	
	Malumbo Chipofya	
	Jan Sahib	
	Carl Schultz	
	Eldar Rubinov	
guest	Telma Rodrigues Esteves	
KI	Co Meijer	