Two Decades of HELINA Conferences: A Historical Review of Health Informatics in Africa

M. Korpela [1, 2, 3]
[1] School of Computing, University of Eastern Finland, Kuopio, Finland
[2] IT Department, Cape Peninsula University of Technology, Cape Town, South Africa
[3] School of ICT, Nelson Mandela Metropolitan University, Port Elizabeth, South Africa

Summary

Objective: Review the history of health informatics in Africa as projected by the HELINA conferences, to draw inferences for the next phase.

Methods and materials: Summarising from the proceedings of HELINA 93, unpublished programmes and reports of later conferences, abstracts and presentations on the web sites of the most recent conferences, and personal recollections of all but one of the conferences. Analysing the e-health situation in Africa in 1993, 2007 and 2011 by mapping software applications presented in the respective conferences on a simplified model of potential spots for e-health use.

Results: The following phases were identified: Pre-phase from 1979; individual scientific papers. Phase 1, the 1993-1999 conferences; carried by the momentum of HELINA 93. Phase 2, interregnum; difficulty to find conference organisers. Phase 3, the 2007-2011 conferences; carried by the HELINA association as IMIA Africa Region. Currently most of the important spots for e-health use are being populated by appropriate software applications, mostly by collaborative open source projects. Phase 4 starting, characterised by the expansion of e-health practice on the continent, the HELINA association as a key organiser, and annual HELINA conferences becoming scientifically stronger and more visible.

Conclusions: Key issues in making health informatics blossom in Africa include local development capacity, community orientation, collaborative design, international collaboration, government support, champions and organised continent-wide collaboration.

Keywords

Health informatics, Africa, history

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1 Introduction

Twenty years ago on Monday morning 19 April 1993 in a conference hall at the Obafemi Awolowo University (OAU) campus, Ile-Ife, Nigeria, some hundred people from all over Africa and beyond stood up for the Nigerian national anthem "Arise o compatriots, Nigeria's call obey". This was a historical turning point – the official opening of the first time that health informatics compatriots throughout Africa gathered together to obey Africa's call for better health through information management and information technology. Not known by that time, it was to become the start of a challenged but sustained tradition which is now about to embark on a new phase.

The First Working Conference on Health Informatics in Africa, HELINA 93 [1], was a direct result of three years of preparation, but it was based on a decade of pioneering efforts which are summarised in section 2 of this paper. Two long-standing phenomena resulted from HELINA 93: the series of HELINA conferences and the health informatics community in Africa. The former is summarized in section 3. This paper does not intend to be a history of the health informatics community in Africa, but the history of the conferences. It is presented in phases that are categorised by the form of the community that organised the conferences in various times.

Although the papers presented in HELINA conferences are scientific ones and thus mainly reflect the changing foci of health informatics research interests in the academic world, they still provide a reflection of the state of the art of e-health practice too in Africa in various times. Three snapshots are presented in section 4 of what specific conferences revealed about practical e-health applications in use in Africa. It must be emphasised that most practical applications are never studied and published in scientific papers, so the snapshots are indicative only of the reality on the ground.

2 Health Informatics in Africa before HELINA[1]

The first researcher who started publishing papers on scientific forums about how health informatics should be applied in Africa was Prof. Femi Agbalajobi from Nigeria from the late 1970s [3] [4] – only about a decade after the first papers in USA and Europe [5]. From the beginning he advocated the importance of local software development to adapt health informatics to local needs. By that time, however, only mainframe computers were available at the main campuses of major universities, which made them unpractical for the operational needs of even the universities' own teaching hospitals.

A major milestone for the globalisation of health informatics in general was the first IFIP-IMIA world congress on health informatics in developing countries in Mexico in 1982 [6]. The introduction to the proceedings addressed the fundamental issue "as to whether Developing Countries can afford to spend scarce resources on informatics when many millions of people have no access to the most primitive forms of Primary Health Care". The response is still valid: "Clearly realistic priorities are urgently needed yet, without some basic

[1] This section is based on [2], pp. 23-29, 152-161 and 184.

informatics system to identify problems and needs, to monitor the evolution and to evaluate new health care service programs, much more of the scarce resources could be wasted before errors become known" ([6] p. xix).

The introduction made a clear stand on the adaptation issue also that was raised by Agbalajobi earlier: "unlike the importation of other technologies, informatics technology after the initial investment in basic equipment and personnel formation, can be sustained by an investment in local manpower" ([6] p. xx). In the conference Agbalajobi himself carried on the discussion on the indigenisation of health informatics [7]. The only other main paper from Africa was a comprehensive discussion of national health information activities in Egypt, in general rather than just the use of computers [8].

In the late 1980s the first microcomputers started to revolutionise the scope of the potential uses of computers in developing countries. Reports started to appear in scientific papers on experimental uses of computers in epidemiology in The Gambia [9] and Botswana [10], in drug prescriptions monitoring and medical libraries [11], and as diagnostic aids in Kenya [12].

The first report on the use of computers in routine data management in healthcare in Africa appears to be in primary care administration in Harare City in Zimbabwe [13] [14]. By the end of the 1980s the use of microcomputers at the district level of primary health care was reported from Niger and Zaire [15], discussed in principle [16] [17], and facilitated by appropriate software packages developed in Asia and Africa [17]. The latter seems to be the first effort to produce packaged software purposely designed for health care in Africa, by a group lead by Ronald Wilson and funded by the Aga Khan Foundation. The first hospital information system in Africa reported on scientific forums was from Nigeria in the beginning of the 1990s [18] [19].

The introductory part of Dayo Forster's PhD thesis [20] was the first elaborated theoretical framework on health informatics or e-health in Africa. She reviewed various existing evaluation frameworks by the time, criticised them of leaving the social aspects aside or being too general. She then added 'human perspectives' of three stakeholder groups: users, recipients (anticipated beneficiaries) and administrators (within the health unit in question).

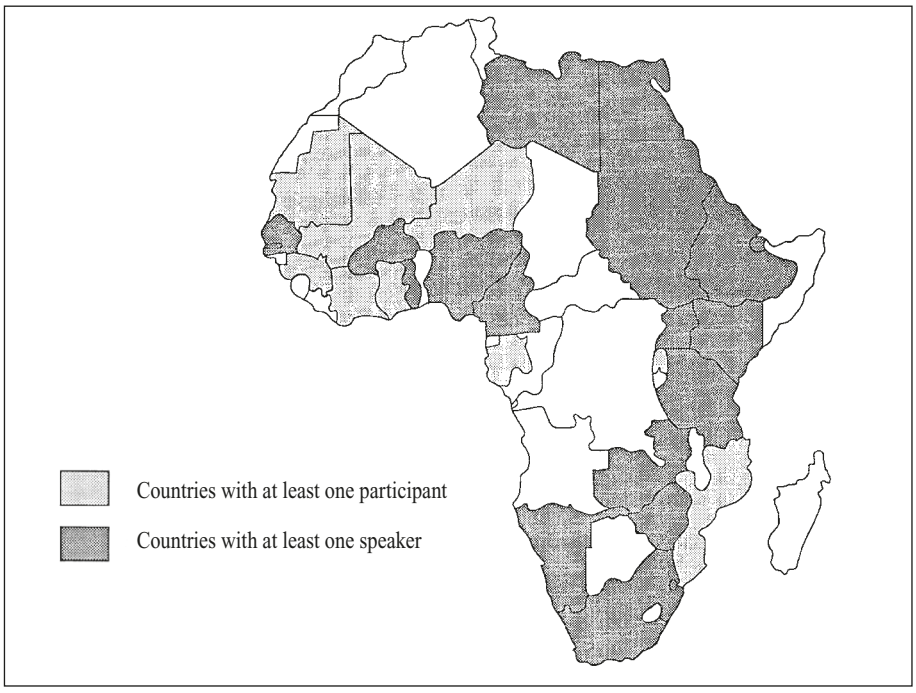

Fig. 1 African countires of residence and countries of origin of HELINA 93 participants

3 HELINA Conferences

The history of the HELINA conferences is divided here into three phases, emphasising the older conferences.

- *Phase one, the 1993-1999 conferences*. During this time the health informatics community in Africa was mainly organised around an e-mail list (HELINA-L) based in Finland since 1994. After the end of apartheid in 1994, the South African Health Informatics Association (SAHIA) as the only IMIA (International Medical Informatics Association) member society in Africa started to take continent-wide responsibility informally. The local conference organisers were decided by IMIA Board after a bid for proposals.
- *Phase two, interregnum*. IMIA appointed Dr Sedick Isaacs of SAHIA as the IMIA Africa Representative and SAHIA created a web site and e-mail list for HELINA, but the activity of the community elsewhere decreased. Efforts to find local conference organising teams failed for a couple of times.
- *Phase three, the 2007-2011 conferences*. A couple of new national societies emerged and became IMIA members, which made it possible to establish HELINA formally as the Africa Region of IMIA. Particularly Francophone West African societies became active. However, the web site and e-mail list run by SAHIA stopped working and the new ones were not able to revitalise the grassroots community.

3.1 1st HELINA Conference, 19-23 April 1993, Ile-Ife, Nigeria[2]

The idea about some kind of international collaboration in health informatics in Africa was born in December 1989 in a joint Nigerian-Finnish project in Ile-Ife, Nigeria [2]. Originally the project participants thought about a modest workshop with colleagues from nearby countries, to exchange experiences and information. The initiators contacted IMIA for support and advice. The IMIA Board approved the idea, on the condition that the initiators would take the responsibility of organizing a full continent-wide scientific conference.

Dr Salah Mandil, the WHO liaison in the IMIA Board, was appointed Scientific Programme Committee Chair. The Local Organising Committee was formed by the

[2] This section is mostly summarised from reports on HELINA 93 by the organisers [21].

OAU Department of Computer Science and Engineering and the OAU Teaching Hospitals Complex (OAUTHC), notably including Dr Adebayo Akinde and Mrs Abimbola Soriyan of OAU and Prof Roger Makanjuola of OAUTHC. An Oversees Bureau (this author) in Finland was in charge of international practical arrangements. The acronym HELINA was inspired by MEDINFO – easy to pronounce, but with an African rhythm – and the logo was created by merging IMIA and Africa.

Since social media was unheard about by that time, the call for papers in English and French was distributed by paper mail to all Computer Science and Health Sciences departments in universities (209 addresses) and Ministries of Health (35) in Africa, as well as sent directly to individuals who had published anything related to health informatics in Africa. South Africa was not included since it was still embargoed by most African countries. Thirty-one scientific papers were selected for presentation through a two-phase blind refereeing procedure.

Nearly all African participants, outside of the host country, needed full sponsoring in order to be able to attend. This made the organising task of HELINA 93 quite different from that of the revenue-generating conferences in industrialised countries. Fund raising was the main concern throughout the three years period of organisation. Extreme sparing, austerity and even personal sacrifices enabled all but a few of the intending African countries to send participants. Sponsoring to the participants was received from Finland, Nigeria, UNESCO, Commonwealth Secretariat, Norway, WHO, IFIP, IMIA and individuals.

The participants came from 28 African and 11 other countries, totalling 124 including 45 foreign and 79 from the host country. Even three South Africans were able to participate. All the language groups of African countries were represented (English, French, Arabic, Portuguese, Amharic). The conference was primarily in English, and interpretation facilities were available in French.

The programme spanned five full days and consisted of nine plenary thematic sessions, one afternoon of parallel workshops, a site visit to OAUTHC, conference banquette and concluding discussion. The topics covered were national health informatics policies and strategies; informatics in primary health care management; hospital information systems; epidemiological surveillance and research; information storage and retrieval; informatics and health/medical education; knowledge-based (e.g. expert) systems; networking & communications; and technology and applications development. Each topic was introduced by a tutorial by an international or African expert.

Edited proceedings were prepared after the conference. The book [1] was published in a "prestigious" series to ensure its availability in libraries, since even the cheapest other alternative would have been too expensive for researchers in Africa by that time.

Fig. 2 Participants of HELINA 93 after the opening session (Ile-Ife, Nigeria). Photo by the official photographer of the conference.

Fig. 3 The HELINA 93 organisers (from left): Adebayo Akinde, Mikko Korpela, Abimbola Soriyan, Salah Mandil, Roger Makanjuola. Photo by the official photographer of the conference.

3.2 2nd HELINA Conference, 15-17 April 1996, Midrand, Johannesburg, South Africa

Institutions from Côte d'Ivoire, Egypt, Kenya and South Africa submitted bids to organize the next conference. In December 1994, the IMIA Board selected the bid by the South African Medical Research Council. Ms Lyn Hanmer (currently Dr Hanmer, Secretary to IMIA) took over the heaviest organising duty. [22]

The conference was attended by 263 participants coming from 23 African and 8 other countries. The programme was now compressed into three days with four parallel tracks, preceded by a two-day Autumn School mainly for local participants. No less than 83 oral presentations were selected, although not everyone was able to attend; there was less sponsoring available than during the first time. Printed materials were in English and French and some presentations were in French but otherwise the conference was in English. [23]

Only abstracts were now available during the conference. Twenty selected papers were later published in Methods of Information in Medicine 1997;36(2).

The HELINA'96 conference was a new step forward and consolidated the formation

of a health informatics community in Africa. A process was launched to create a regional body for health informatics interests in Africa. The most amazing aspect was that the famous spirit of HELINA'93 was there, although none of the 1996 organising committee members had attended the first conference. [22]

3.3 3rd HELINA Conference, 29 November - 1 December 1999, Harare, Zimbabwe

During HELINA'96 IMIA requested interested parties to send bids for organizing the next conferences in 1999 and 2002. After some difficulty, Harare, Zimbabwe, was selected in late 1998. The organising team, lead by Dr Godfrey Woelk (currently Prof Woelk in USA), was from the University of Zimbabwe Medical School. [24]

The theme of the conference was "Health Informatics in Africa at the Millenium and Beyond". The participants came from 12 African countries, Europe, the US and a few international organisations. The programme consisted of 29 oral presentations in three days of plenary sessions, followed by two days of workshops. The conference was now in English throughout, and there was no presentation from Francophone Africa. No sponsoring could be raised for international participants. A press release was interactively developed, emphasising the need for international and national support for health informatics efforts in Africa. [24]

Only abstracts were again available during the conference [25], but this time there was no post-conference selection of papers for publication either. HELINA'99 was the last conference carried by the momentum created by the first conference.

3.4 4th HELINA Conference, 13-15 October 2003, Sandton, Johannesburg, South Africa

After the Zimbabwe conference Dr Isaacs met increasing difficulties in identifying a team that could manage the task of organising an international conference. A bid from Egypt for 2002 did not materialise. Meanwhile, Harvard Medical International, National Library of Medicine and the Centers for Disease Control and Prevention from USA were collaborating with the South African Medical Research Council in preparing a conference on "Communication and information technology in the fight against HIV/AIDS in Africa". To keep the HELINA process alive, IMIA and SAHIA decided to convene it as HELINA 2003. The goal was "to introduce those who face the challenges of addressing the issues related to HIV/AIDS research and clinical support, to those who develop potentially helpful communication and information technologies". [26]

More than one hundred submissions were received. The bulk of the presentations and participants were however HIV/AIDS researchers who had little to do with health informatics and to whom Africa was mainly the source of research data. HELINA type of presentations and participants were a small minority. The conference was dominated by highly established American medical researchers who were surprised to learn about HELINA history.

No published papers based on HELINA 2003 are found by Google Scholar,

However, Sedick Isaacs convened a meeting during the conference to assess the creation of an IMIA Africa Region and the promotion of national health informatics associations. South Africa was still the only country with an established association, but a number of individual 'corresponding members' from other countries were registered by IMIA.

3.5 5th HELINA Conference, 9-10 January 2007, Bamako, Mali

The important outcome of the small meeting during HELINA 2003 was to trigger some researchers to embark on establishing national societies in their countries. The plan was to have the next HELINA in Tanzania in 2005 or 2006, but the local resources where not broad enough. Then the newly established IMIA National member for Mali Société Malienne d'Informatique Médicale, Biomédicale et de Santé (SOMIBS) took the challenge and organised HELINA 2007, which was to become the first one of a new phase. The 12th global Francophone conference Journées Francophones d'Informatique Médicale (JFIM) was organized back-to-back with HELINA, which gave much needed organisational support to the HELINA part. [27]

The theme of the conference was a general one – "eHealth in Africa". The deadline for abstracts was only 3 months before the conference, but it was well attended by participants from 20 African and 7 other countries. Presentations were in both French and English and simultaneous interpretation was available 'for the first time since HELINA'93, but by much more experienced interpreters. Papers and presentations were published electronically on the SOMIBS web site and a mirror site in Switzerland that have unfortunately disappeared since then.

The old "HELINA spirit" was back – the atmosphere was relaxed and informal,

Fig. 4 HELINA 2007 (Bamako, Mali). Photo by the official photographer of the conference.

people were eager to see action instead of just measurements and theorising. The scientific quality of many papers was however also improving from the previous couple of conferences. Most importantly, a meeting of African leaders in Health Informatics during the conference formally constituted HELINA as the IMIA Africa Region, accepted a constitution and elected a six persons Board under Sedick Isaacs. SAHIA provided the secretariat [27]. The Board created an email list at Yahoo Groups after the conference, but it never attracted a broader audience (22 at most) and became inactive before HELINA 2011.

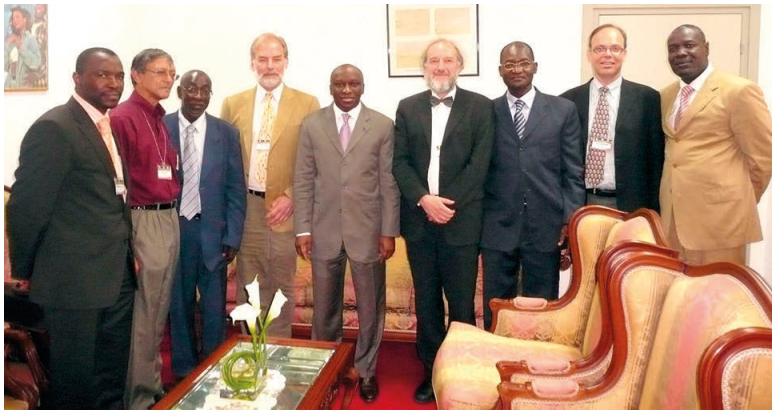

Fig. 5 Notables of HELINA 2009 (Grand-Bassam, Côte d'Ivoire). Photo from RAFT blog http://raftblog.blogspot.ch/search?q=helina, published by Antoine Geissbuhler

3.6 6th HELINA Conference, 16-17 April 2009, Grand-Bassam, Abidjan, Côte d'Ivoire

At the end of the HELINA founding meeting it was agreed that the next Conference will be held in the Côte d'Ivoire in 2009, hosted by the Société Ivoirienne des Biosciences et d'Informatique Médicale (SIBIM). The newly established HELINA board was directly involved in the organisation of this conference. The RAFT (Réseau en Afrique Francophone pour la Télémédecine) network [28], hosted at Geneva University Hospital's Medical Informatics Department, Switzerland, became a new backbone for HELINA activities together with the national societies present at HELINA 2007 [29].

The theme of HELINA 2009 was "Information and Communications Technology in Health Information Systems of African Countries". Information dissemination of the conference was not very systematic – the first call appeared on the Yahoo Groups mailing list only, one and a half months before the deadline, and notifications of abstract approvals arrived less than two weeks before the conference. However, no less than 45 abstracts were selected for presentation, both in French and English. The programme consisted of two days of plenary sessions of 10 minutes presentations and four parallel two-hours workshops. [30]

Abstracts and presentations were published electronically on the SIBIM web site which has unfortunately also since disappeared.

Fig. 6 Session in HELINA 2011 (Yaoundé, Cameroon). In front (from left): Prof Walinjom Muna, Prof Antoine Geissbuhler, the late Dr Sedick Isaacks, Mrs Isaacs. Photo by Mikko Korpela

3.7 7th HELINA Conference, 28-30 November 2011, Yaoundé, Cameroon

The HELINA Board had decided to move from the original triennial conference cycle, similar to that of MEDINFO, to biennial or even annual events. The HELINA Region member countries by that time were Ethiopia, Cameroon, Cote d'Ivoire, Malawi, Mali, Nigeria and South Africa, and the plan was initially to have the next conference in 2011 in Nigeria [31]. When that became unfeasible, Cameroonian Health Informatics Society (CAHIS) accepted to co-organize the conference with HELINA board. The non-governmental organisation Koegni-eHealth Innovation for Development played a key role in organising this conference. This Non Governmental Organisation had been founded by Cameroonian health informatics experts living in Germany with the goal of contributing to a sustainable development of health informatics in Africa. Although individual Africans in diaspora had been involved in HELINA activities ever since the first conference, this was the first organised involvement and highly beneficial.

The theme selected to HELINA 2011 was "Health Information Systems: Scaling up solutions to transform healthcare delivery in Africa". Thirty-seven abstracts were selected for presentation. The programme spanned over two and a half days and consisted of plenary sessions for paper presentations, two keynote presentations, five tutorials, a brainstorming session and the General Assembly of HELINA. Simultaneous translation between English and French was again available; the interpreters were frustrated for people discussing enthusiastically without microphones.

Presentation handouts are available on the HELINA Region's web site [33] but edited papers have not been published.

4 Snapshots of the Situation in e-health in Africa

Three snapshots[3] are presented now of what the conferences in 1993, 2007 and 2011 revealed about practical e-health applications in use in Africa at those points of time. These conferences were selected because their proceedings or programmes provided enough materials, i.e., papers dealing with practical applications. Unfortunately the 1999 and 2003 conferences did not cover sufficiently wide a range of applications for this analysis, so the intervals are not even. The scope of analysis is limited to health care delivery and management only, leaving the applications in education, research, etc. aside.

4.1 The Framework for Analysis

To identify potential "spots" for applications, a simplistic generic model of a healthcare system was first developed [35] (see [36] for the presentation methodology). With a people-centred healthcare approach, one needs to first identify the various health-related services available to individuals and communities at the entry level (rightmost lower corner of Figure 7). Basically these are provided by the primary health care facilities of the public sector, general practitioners etc. in the private sector, as well as faith-based, non-governmental and traditional care providers in the third sector (second-right column of Figure 7). The specific role and structure of these services vary greatly from country to country, even from community to community in the same country, as well as from a specific healthcare need to another. For instance, traditional birth attendants may have a very important role in a rural setting but be completely missing from the picture in a wealthy suburb.

When the entry level is not able to deal with a healthcare need, the public healthcare system provides typically two to three further levels of hospital services, from general hospitals to the highest level of specialised care typically in university teaching hospitals (horizontal chain of blocks in the middle of Figure 7). The same kind of cascaded structure can exist in the private sector. The bigger the facility, the more activities (circles within blocks in Figure 7) they include. Even at the entry level some facility management and records keeping activities are needed in addition to the care provision activities themselves.

Finally, there needs to be a superstructure of management and administration above the facilities. The primary health care model emphasises the need for holistic political decision making and health administration at the lowest level of elected government, often called districts (the district health administration activity of the local government in Figure 7). The relation between political structures and administrative structures again vary from country to country, but at least there is a national ministry in charge of health issues and usually some regional structure of health administration (horizontal chain of activities on top of Figure 7).

Each activity in the simplified generic model is a potential spot for information use (Figure 8; depicted as a "computer screen", but the medium of the information can be anything from voice via paper to web). The information used in these spots can come from one or more data storages (depicted by barrels in Figure 8) that are usually managed by organisations within the healthcare system. The storages can also be implemented in different technologies, from sheets of paper in patient note folders via index card boxes to computerised databases. Finally, data should flow from one storage to another (strong arrows in Figure 8), be it by telephone, referral letters, file transfers or computerised messages [37].

There are three less obvious data storages or repositories in Figure 8. A regional database for "cross-sectoral services" has been suggested in some technologically advanced countries to open up databases kept in organisations. A different perspective on the same issue is to create personal health information repositories or "citizen's records". Particularly in Africa a similar need has been pointed out for "community's records". All three should in principle draw their contents from various organisational repositories, and all three face the same challenge: who should

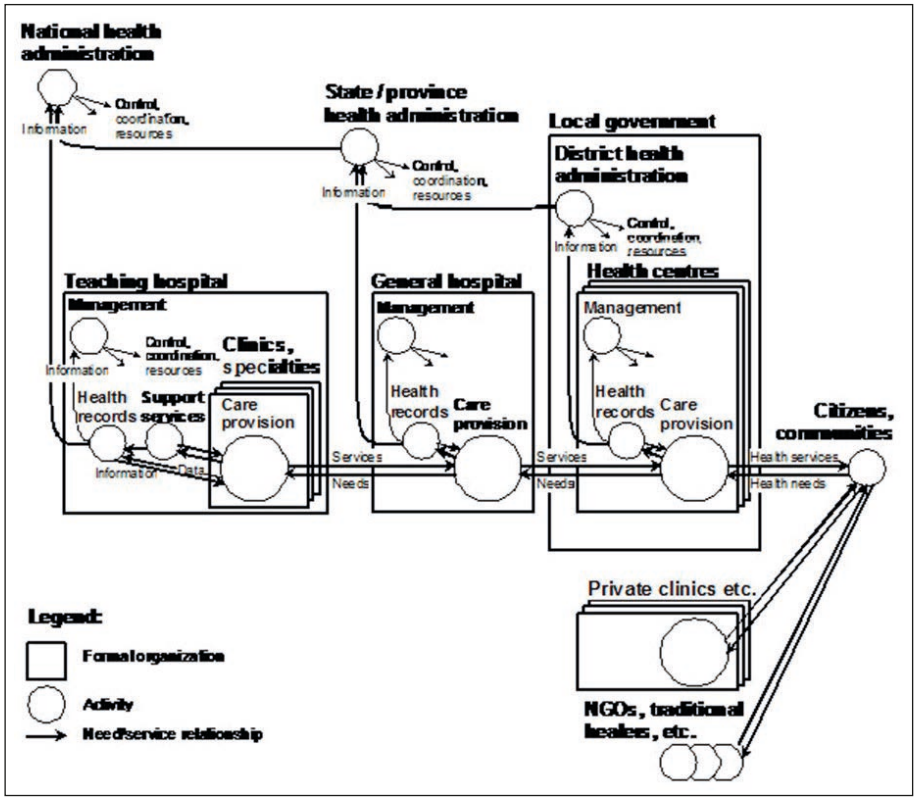

Fig. 7 A generic model of the health care system in a country.

[3] This section is expanded from [34].

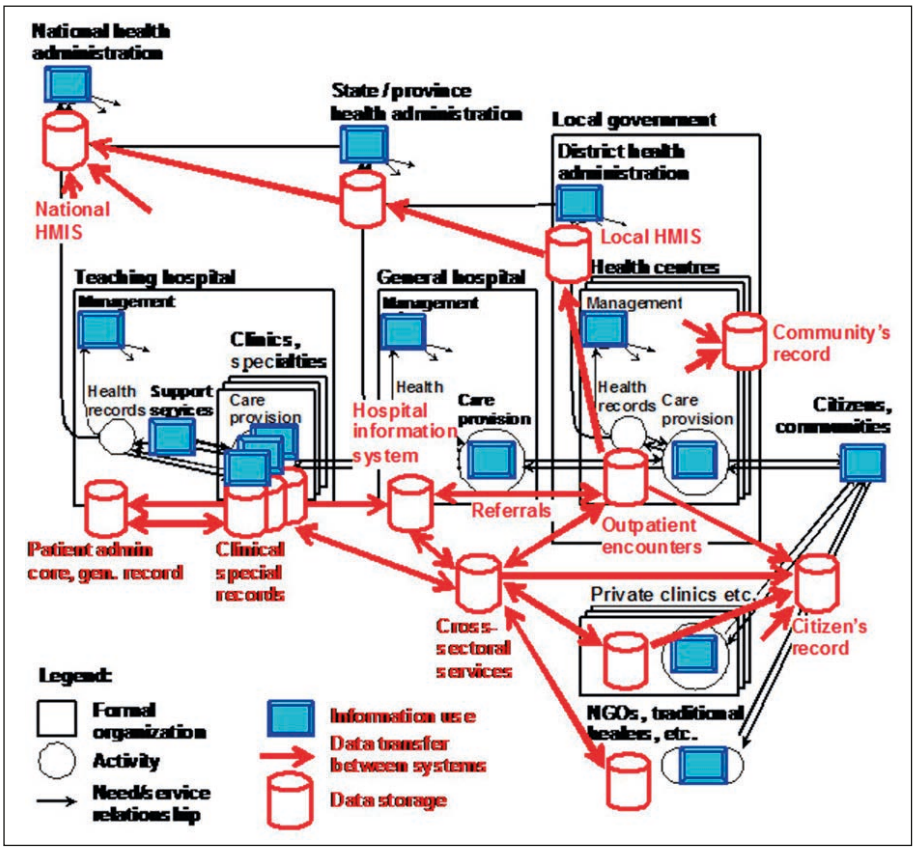

Fig. 8 Possible elements for a national e-health architecture.

and could manage this kind of repositories and respective software systems?

The simplified model of Figure 8 is used in the following sections to identify spots (information use situations, repositories and flows) where computer-based information and communication technologies were reported in Africa in three HELINA conferences.

4.2 E-health in Africa during HELINA 93

Eight software applications were reported in the papers to HELINA 93 [1]. They can be grouped as follows:

- *Local level healthcare management information systems (HMIS)*: (1) The Development of a Computerized Information System in the Harare City Health Department; (2) Developing a Medical Information System for Two Local Governments: Ijebu-Igbo (Nigeria) and Manzini Town Council (Swaziland).
- *Management within a health facility*: Using Information in Clinical Management: A South African Case Study.
- *Hospital information systems (in-patient care)*: (1) An Integrated Hospital Information System for the National Cancer Institute in Cairo, Egypt: An Experience to Be Shared; (2) Hospital Information System in a Nigerian Teaching Hospital: A Model.
- *Clinical decision making*: (1) AISY: An Integrated AIDS Information System; (2) Expert Systems as a Useful Tool for Tropical Diseases Diagnosis: Case of Malaria.
- *Vertical health programmes*: Utilization of Computers in Onchocerciasis Control Programme in West Africa.

4.3 E-health in Africa during HELINA 2007

Fourteen years later, some new spots of the simplified model were populated by software applications, more of which were now packages instead of pilots: [34]

- *National to local level healthcare management information systems (HMIS)*: The District Health Information System (DHIS), developed by the international open-source Health Information Systems Project (HISP) based in Norway, was in use in several countries in Africa.
- *Management within a health facility*: The HISP project had proceeded from district-level management to a case of hospital management, too, in Zanzibar.
- *Hospital information systems (in-patient care)*: (1) The Care2X package was in use in a couple of countries; (2) The Nigerian hospital information system already reported before and during HELINA 93 was still in use, now named as Made in Nigeria Hospital and Primary-care Information System (MINPHIS).
- *Out-patient encounters*: The OpenMRS package, developed by an international open-source project originating in the USA, was in use in Kenya, Rwanda, South Africa and piloted in Lesotho, Malawi, Tanzania, Uganda, and Zambia. An implementers' workshop was organised as part of the conference.
- *Empowering communities*: Small-scale experimentation with the idea of community health information systems was reported from South Africa.

4.4 E-health in Africa during HELINA 2011

Only about five years after the previous snapshot, some strong new developments could again be observed: [34]

- *National to local level healthcare management information systems (HMIS)*: The DHIS package was spreading to still more countries and improving functionally.
- *Management within a health facility*: This spot of use was not covered this time.
- *Hospital information systems (in-patient care)*: The comprehensive open-source package Cinz@n, developed within the Francophone RAFT (Réseau en Afrique Francophone pour la Télémédecine) network, was in use in Mali and spreading to other Francophone African countries, especially Cameroon.

- *Out-patient encounters*: The OpenMRS package was also spreading to still more countries and undergoing major functional development and re-design.
- *Interoperable specialized clinical systems/modules*: A Radiology Information System (RIS) had been developed in Nigeria as a module that was integrated with MINPHIS with a standard service interface.
- *Vertical health programmes*: Several papers, particularly from Cameroon, reported on-going efforts to build "disease-wise" clinical systems for psychiatry, neurology, ophthalmology and diabetes, incorporating communication between levels of healthcare as a basic design functionality.
- *Empowering communities*: Small-scale experimentation towards the idea of community health information systems was reported from Kenya and South Africa (home-based care).

5 Future Directions

It can be safely concluded that health informatics in Africa is embarking on a new phase four, about to stake a major step forward.

The basis for the new phase is the *expansion of e-health practice* on the continent. The 2011 conference showed that most of the important spots for e-health use are being populated by appropriate software applications, mostly by collaborative open source projects. Governments are also making political commitments through the World Health Organisation WHO. The success stories echo the factors emphasised in 2003 and 2011 – local development capacity, seed funding, international collaboration, collaborative design [35], champions, continent-wide collaboration, and community orientation [34]. A new factor is the emerging local health informatics education, supporting local centres of health informatics research and development.

Secondly, the *health informatics community* is becoming more stable because of the strengthening on the ground. The number and size of national societies in African countries is now sufficient to sustain the HELINA association as the IMIA Africa Region. A brainstorming meeting organized during HELINA 2011 concluded that the current phase necessitates a well-structured and organized HELINA as a key organiser and coordinator of the efforts on the ground. The meeting was the first step of a HELINA strategic plan development that is being conducted by a task force and should be published at the next conference. The emphasis is on ensuring the quality of the health informatics education, research and development through different regional activities – conferences, working groups, workshops, tutorials, etc. – across the continent, supported by solid partnerships with local and global scientific and political organisations.

Thirdly, the *HELINA conferences* are becoming annual gatherings of the community. It has become highly topical and possible to revive the scientific standard of the first conference by requiring full papers that will be published as proceedings. The launching of an electronic, open access African Journal of Health Informatics would be optimal for that purpose. The visibility of the conferences through calls for papers also is to be improved. The next HELINA conference will take place on 7-8 October 2013 in Eldoret, Kenya.

6 Conclusion

In the beginning, Femi Agbalajobi advocated the importance of local software development, Ronald Wilson and others emphasised bottom-up planning by communities and top-down support by governments and non-governmental organisations, Dayo Foster argued for the human perspectives of health informatics users, beneficiaries and administrators. A quarter of a century later, local development capacity, community orientation, collaborative design, international collaboration and government support are still among the key issues in making health informatics blossom and contribute to people's health in Africa. What historical experience has added is the importance of champions and the need for organised continent-wide collaboration. The HELINA organisation is now taking the lead as the organiser.

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Correspondence to:
Mikko Korpela
University of Eastern Finland
School of Computing
PL 1627, FI-70211 Kuopio, Finland
Tel: +358-40-355 2811
E-mail: mikko.korpela@uef.fi
www.uef.fi/act/people/mikko.korpela

Fig. 9 The HELINA 2011 gala cake. Photo by Mikko Korpela.