**Think Paper 18: Local Innovation, Shadow IT and World Disasters**

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Local Innovation, Shadow IT and World Disasters? The common thread through these three may not be self-evident. The short answer is: when it comes to technology innovation, if we are standing still, we are falling farther behind. We need to harvest the field “discoveries” and make them robust enough to take to scale for a Federation-wide audience[[1]](#footnote-1).

The World Disasters Report

The WDR for 2013 is focused on technology and the future of humanitarian action. For technology strategy it is a call to arms. Three numbers from the report to consider:

1. **29%:**  of the 24 application categories, IFRC may count 7, in which we have done or are doing work. That's less than a third[[2]](#footnote-2).
2. **50%:** of IFRC applications cited in the 39 sidebar "box" cases, IFRC reported on 8 applications of which 4 originated in the Field[[3]](#footnote-3),
3. **68%:** of the 300 references in the report, over two-thirds are within the last 3 years. The use of technology in field work has exploded. While IFRC has some notable cases, we are easily surpassed by work done in other organizations.[[4]](#footnote-4)

Two key questions from an IT perspective that the WDR poses for IFRC:

1. Of the many of the in-country tech projects that have launched since the Relief 2.0 report launched in early 2011, how many new ones have launched at IFRC since then?
2. What are we doing about this this report? What are our action items of response to the innovation challenges this report represents? (See some thoughts in the conclusion, below)

In short, the WDR demands a response to IT innovations occurring in the Field and outside our organizational boundaries.

Shadow IT

Shadow IT can be described as the IT work done outside the IT department’s budget and knowledge[[5]](#footnote-5). It has been a long-standing issue at IFRC and represents an estimated 23% of the IT application work done at IFRC at an estimated cost of over 600,000 CHF per year[[6]](#footnote-6). Two difference perspectives on Shadow IT are that on the one hand “Shadow IT is considered by many an important source for innovation and such systems may turn out to be prototypes for future approved IT solutions” and on the other hand “... Shadow IT solutions are not often in line with the organization's requirements for control, documentation, security, reliability, etc.”[[7]](#footnote-7)

On the use of innovative technology a recent IFRC survey is telling. When asked in May 2012, IFRC users reported that nearly half either had or were planning to buy an Apple iPhone or iPad device to use for email, calendar, social media and file sharing. In the following year, research into our provisioning of user-purchased devices with an IFRC-paid SIM chip indicated that 44% of all mobile users were using a non-standard device[[8]](#footnote-8). Bottom line: the Bring-Your-Own-Device (BYOD) trend is not new to IFRC, further supporting non-IT department drivers for innovation. It is important to note that the “open” approach to IT devices and applications at IFRC that ISD champions made this development possible.

Innovations notwithstanding, there are strong arguments against Shadow IT such as redundant projects (with duplicate time and costs, as high as 2.5M[[9]](#footnote-9)), divergent technologies, lack of integration and synergies among systems, and long-term support[[10]](#footnote-10).

The study of the Resource Mapping System (RMS) developed in the Asia Pacific Zone concluded that “the RMS application as it now stands deviates from our corporate IT standards and architecture and it (a) overlaps other projects (DRIS, SCM), (b) is not supportable long term, (c) will not scale well in the organization and (d) would not pass a systems audit. As such this is a significant risk to the organization.” However, the report went on to say “We want to endorse innovative applications and provide for their expanded use by IFRC and National Societies (NS) ...once the issues for scalability have been addressed.[[11]](#footnote-11)”

The IFRC IT Steering Group (ITSG) supported the RMS report conclusions, noting the benefits and potential risks of Shadow IT, and the need to ensure that potential risks are managed.[[12]](#footnote-12) The process endorsed by the ITSG had four primary components: (a) consultation with the ISD department for medium or larger applications (greater than 50K CHF to develop) in the early stages when the application need is identified, (b) the use of a systems exception checklist to provide for non-standard solution, and (c) an routing of contracts and invoices with IT components from HR and Finance to ISD for review, and (d) ITSG oversight as needed. Unfortunately, the recommendations for the RMS application have not been implemented and this may be a missed opportunity to provide a benchmark case for moving forward.

Local Innovation and Sharing Apps

The WDR confirms that applications that are developed locally are meeting some important needs of programs at IFRC and National Societies. Our Zone leaders have also reported the benefits, and advocated for local applications. The question is *not* how to stamp out Shadow IT; it is rather how to harvest it and build on it to get scalable solutions developed by those closest to the needs.

Provided the risks are mitigated, there are strong benefits to sharing applications that are developed locally. In short, local innovation means first that the technology is “already working somewhere; it leapfrogs over getting a new system to work; the pilot has already been run. Second, some group has already adopted it; it doesn’t need to be sold. Third, it’s field-tested; especially for international NGOs working in challenged rural settings, it works where technology is rare.[[13]](#footnote-13)”

**So how do we move local applications to the regional and global stage?** Three things are required: it needs to be sustainable, maintainable and supportable. Let’s look at each:

1. Sustainable: Funding is in place to scale and survive developer and sponsor turnover.
2. Maintainable: It has the technology architecture, standards and integration to work in the IFRC applications ecosystem
3. Supportable: The training and service plan to support users has been done before growing the base of users

An important criteria to add to these three are that the time and costs for the application need to be locally affordable, not centrally. This is in keeping with our National Society capacity building model.

Conclusion

We need to harvest and move local innovations forward and we need to ensure technologies are sustainable, integrate and work together. At the outset I asked what are our action items of response to the innovation challenges of the WDR report? Here are six potential responses[[14]](#footnote-14):

1. Launch an innovation fund now with NS and corporate matching to (a) pilot new field apps in each WDR category (b) scale up successful field apps like MEGA V, TERA, RMS, RAMP, Serval, etc. to take the local apps to new countries (For comparison, note the Humanitarian Innovation Initiative launched by USAID and DFID in Feb. 2013, with $15M fund for innovation ( see <http://www.usaid.gov/news-information/press-releases/disaster-technology-us-and-uk-fund-humanitarian-innovation>)
2. Create a humanitarian technology contest for mobile apps (to be launched at WDR release event). (Note the Tech Challenge lessons learned in chap 7, box 7.6, in the WDR)
3. Create a humanitarian technology R&D lab; bring the IT skills from NSs and Corporations as staff-on-loan to resource it
4. Scale up the Technology Catalog.... Add research plus applications from the programs noted in the WDR report
5. Scale up the Advisory Services unit to expand so it can advise and consult with NSs on new technology (What to do after—and in parallel—to bridging the DD)
6. Team-up with Microsoft Imagine Cup, Intel Math & Science awards, USAID Tech Challenge, etc. to offer internships for tech solutions to be scaled across NSs post-contest

During times of economic challenges, it may be difficult to act on a set of recommendations that require investment. However, it is the smart organizations that double-up on their most strategic projects so that when economies turn, an organization can accelerate.[[15]](#footnote-15) It is a very strategic question to ask what business as usual projects can be deferred so that more strategic projects can be funded now. If given the option, I would take 20% of the ISD projects budget and allocate it to the innovation fund and other recommendations, above. What are the alternatives? What does our collective imagination suggest?

# Appendix 1 – Technology Innovations and IFRC



*World Disaster Report 2013,* Table 1.1, Chapter 1, p. 11; IFRC data added.

# Appendix 2: WDR Case Statistics - IFRC



# Appendix 3: WDR Reference Statistics

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **World Disasters Report - 2013** | | | | | | |  |  |
| Reference Statistics | | | | |  | |  |  |
|  |  | | | |  | |  |  |
| **Chapter** | **References** | **Since April 2011 [1]** | **Pct "New"** |  | |
| 1 | 42 | 28 | 67% |  | |
| 2 | 39 | 29 | 74% |  | |
| 3 | 54 | 39 | 72% |  | |
| 4 | 43 | 32 | 74% |  | |
| 5 | 70 | 49 | 70% |  | |
| 6 | 37 | 20 | 54% |  | |
| 7 | 15 | 8 | 53% |  | |
| TOTAL | 300 | 205 | 68% |  | |
|  |  | | | |  | |  |  |
| [1] The "Relief 2.0" report was published in April, 2011 and is a key milestone in technology an disaster response | | | | | | | | |

# Appendix 4 - ITSG Recommendations on Shadow IT

From the ITSG minutes for March 2012:

**4.3** *Shadow IT and IT projects governance*

EH presented the challenges of “Shadow IT” (IT initiatives commissioned and funded outside ISD). It was noted that per the GSMT Roles and Responsibilities document (3-Nov-2010) that Geneva has the responsibility for setting standards and divergence from this is a long-term cost. Nonetheless, there are both benefits and potential risks in Shadow IT, with the challenge to ensure that potential risks are managed. To this end three models were suggested by ISD being **i)** No Shadow IT; **ii)** ISD to review, advise and approve department funded projects; and **iii)** Departments fund ISD to do all projects.

ISD proposed **a)** developing a standard framework; **b)** maintaining an IT Applications catalogue including all local solutions; **c)** developing a threshold (e.g. >CHF30K) beyond which investment is to be reviewed by ISD and ITSG.

ITSG comments included the following

* The proposal appears to address model **ii)** above which was agreed by ITSG as the preferred option;
* Other departments (in addition to ISD) should also be consulted in the process. ISD should coordinate this;
* A checklist should be developed in relation to **a),** which would require ISD to review should certain criteria not be met;
* A finance threshold (e.g. CHF30K) could be considered, but this should not be the determining factor and other items (like the checklist) also need to be considered;
* The proposed criteria could be trialed and reevaluated
* Whether an inventory for all IT systems has been performed? ISD confirmed that Accenture has performed such a review.
* The IT Projects Governance draft was deferred to the next ITSG meeting; it should include the Shadow IT recommendations, above.

From the ITSG minutes for Nov. 2012 on the RMS Review Report:

“We reviewed Shadow IT during the July ITSG meeting (see item 4 in the minutes, which notes: “An Exception Checklist has been developed by ISD for local IT to follow including an on-line form to be used to formalise the process” and “The ITSG acknowledged the implementation of previous suggestions in the Quarter 2 ITSG meeting, and supported ISD’s approach to Shadow IT.” Further “…recommend we put forward the Exception Checklist as a requirement for all departments and the zones.”

**Comments by ITSG [on RMS] included:**

* Recalling that the reason for this coming to the attention of ITSG was under the broader discussions earlier in the year relating to “Shadow” IT. The ITSG reinforced the requirement for project proposals to be captured by ISD and if necessary, presented before the ITSG.
* ***Recommended that a policy in relation to “Shadow IT” to be considered.***
* Noting the recommendations from the Taskforce Report, as well as the proposed change in name to “Resource Mapping System”.
* Noting that a Steering Committee (of ISD and APZ members) will oversee the project and should report back to the ITSG periodically. It was recommended that a DM and an OD person be added.
* Noting that the job descriptions for the RMS Support positions in the Asia-Pacific, Africa and Americas zones need to be confirmed as having a broader scope, including ISD Technology Catalogue applications support responsibilities.
* Noting that the RMS project does not have budgetary impact. (it is funded out of APZ restricted funds.)
* Noting the issue regarding “ownership” of the system, especially if this is proposed for wider use in other Zones/Regions. This issue should be revisited in 2013.

From ITSG June 2013 minutes:

“…this issue [Shadow IT] was raised earlier at the ITSG (July 2012) and is still on the agenda in the ITSG`s cumulative Action Points for follow-up. Further steps taken include the following: (a) Shadow IT above CHF50K should be reviewed by ITSG and this will be included in ITSG’s amended ToR; (b) controls will be implemented to trigger ISD awareness of Shadow IT. For example:

1. consulting agreements which has an IT component being forwarded by HR to ISD for review;
2. invoices with an IT component being forwarded by Finance to ISD for review;
3. Shadow IT over CHF50K will be added to the ISD project list;
4. the proposed Contract Management System incorporating an ISD validation function.”

And “The role of ITSG should include reviewing whether synergies exist between systems and to minimize duplication and overlap (especially relevant to shadow IT). …” and “NS developments and new ideas should also be considered. ISD responded that the technology catalogue has been developed and this collates more than 900 applications and this was presented at the recent CIO summit.”

# Appendix 5 – Budget Assumptions for Potential Innovation Response Program

The following is a high level estimate of the budget required to implement the six potential innovation programs suggested in the conclusion, above. We have indicated some impacts and solicited comments from Finance. These are included in the table below, with the ISD response to the questions raised.



# Appendix 6 - IT System Exception Checklist

14 August, 2012 edition, on the shared drive, [here](file:///T:\ISD\IS%20Services\0.User%20Support\Service%20Desk\Support%20Manuals%20(under%20preparation)\IT%20System%20Exception%20Checklist.docx). Note the 13-point checklist on the third page of the form, below.

**IT System Exception Checklist**

**Background**

Global operations at IFRC from around the world involve complex processes and varying need for IT systems support. Most IT systems and standards are designed from the Secretariat headquarters in Geneva, and replicated and made available for all field offices. While ISD does not recommend using technology outside our standards, there may be specific business requirements that may not be satisfactorily met from the existing portfolio of systems, or planned projects.

While these unique requirements are important to be met, it is also important to invest wisely so as to maximize the impact of this investment and make it available globally. On the other hand, there may be projects on the drawing board to cover these requirements, and any parallel initiative could seriously jeopardize such plans.

All decisions to invest in local solutions should at a minimum be mutually compatible, and include long term plans of support and integration or short-term plans to replace it with standard technologies as they become available.

Users need to keep in mind that the total costs of ownership (TCO) for one-off or local technology projects and their support usually exceeds the budgets available and are often difficult to integrate with our standard technology architecture, including hardware, software and databases. However, we recognize that emerging technologies may warrant pilot projects from time-to-time, and the emerging technologies of today often become the standard technologies of tomorrow. Therefore we have designed this form to help identify those cases where an exception to our standards has a strong and positive business case rather than a matter of personal preference.

This document is aimed to provide the guidelines to achieve the above-listed objectives.

**IT System Exception Request**

|  |
| --- |
| **Hardware**  **Software**  **Date:** |
| **Requester:**  **Brief description:**  **Department:**  **Contact information (phone/e-mail):** |
| **Please review the checklist on following page and confirm current status:** |
| **Proposed next steps:** |
| **Requirement time-frame:** |
| **Costs:**  Initial investment costs:  Training and roll-out costs:  Annual support arrangement costs:  Hosting costs:  Systems integration costs:  Data conversion costs:  Expected return-on-investment period: |
| **Expectations from ISD:** |
| **Expected Expiration date for this system:** |

**Signatures:**

1. Requester: Date:
2. Immediate supervisor: Date:
3. HOD or USG: Date:
4. ISD Unit Manager or CIO: Date:

ISD Recommendations:

**Checklist**

* The business and functional needs for this request has been reviewed with your manager.
* The business and functional needs for this request has been reviewed with an ISD manager. Please provide some details on this contact…  
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* A business requirement cannot be satisfactorily met within existing systems landscape of IT solutions (Please refer to IT Applications Catalogue available on FedNet).
* The requestor or ISD contact verified there is no current initiative (project) to meet this requirement in reasonable time-frame (Please refer to [ISD Projects Portfolio](https://fedteam.ifrc.org/global/collaboration/support/ISD/ISD%20Project%20Portfolio/Forms/Active%20Projects.aspx) available with the Manager – IS Applications Unit).
* The requestor or ISD contact reviewed the [IT Applications Inventory](https://fedteam.ifrc.org/global/collaboration/ns_dev/dd/Lists/Applications%20Inventory/Grouped%20by%20Functional%20Area.aspx) (available on FedNet) to consider solutions used within the Movement with opportunities to “[discover & harvest](http://fednet.ifrc.org/dd)”
* The plan to build a local solution has a reasonable investment. This may be considered as a stop-gap solution that has a very short Return-on-Investment.
* The proposed solution will be made available for other potential users in the Federation via the Technology Catalogue. (Are there license restrictions / costs?)  
  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
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* The data captured in the proposed solution can be recovered or transferred to another institutional solution, if required.
* All costs are fully covered by the requestor, including hosting, training and support contracts for the life-time of proposed system.
* If the new system is based on a non-standard architecture, the system is completely hosted and supported by a service provider, and all costs covered by the requestor.
* The technology is stand-alone, not requiring input from, or output to other systems.
* Documentation on the system will be provided to ISD upon completion of the project
* A written evaluation of the pilot or project will be provided to ISD

If any of the above items is not checked, please provide additional information on why not?

ISD will assist the Requestor, where possible, in choosing/designing the proposed solution in view of longer-term objectives. The Requestor may also refer to the ISD standards for all software development or procurement initiatives, including:

* Commercial software selection policy (document 78, available on FedNet under “[Secretariat management policies, processes and procedures](https://fednet.ifrc.org/en/our-federation/about-the-federation/ppp/commercial-software-selection-policy/)”).
* Electronic Information Security policy (document 75, available on FedNet under “[Secretariat management policies, processes and procedures](https://fednet.ifrc.org/en/our-federation/about-the-federation/ppp/electronic-information-security-policy/)”).
* Non-functional requirements document (Please refer to the latest version of “[IFRC non-functional requirements](https://fedteam.ifrc.org/global/collaboration/support/ISD/Shared%20Documents/ISD%20Policy%20Documents/IFRC%27s%20Non-functional%20requirements.doc)” available with Manager – IS Application or posted on FedTeam)
* “[Web User Interface](https://fedteam.ifrc.org/global/collaboration/support/ISD/Shared%20Documents/ISD%20Policy%20Documents/Web%20User%20Interface%20Policy.doc)” policy and the “[Website Application Branding and Design Guidelines](https://fedteam.ifrc.org/global/collaboration/support/ISD/Shared%20Documents/ISD%20Policy%20Documents/Website%20Application%20Branding%20and%20Design%20Guidelines%20v1.3.doc)” documented (Please refer to the latest versions available with Manager – IS Application or posted on FedTeam)
* “[ISD Systems Architecture - Current Standards](https://fedteam.ifrc.org/global/collaboration/support/ISD/Shared%20Documents/ISD%20Policy%20Documents/ISD%20Systems%20Architecture%20-%20Current%20Standards.docx)” available with Manager – IS Applications or posted on FedTeam).

Are there any other considerations to considering this exception request?

1. The “Discover and Harvest” approach to technology was introduced in May, 2010 in my article of the same title: <http://eghapp.blogspot.ch/2010/05/discover-and-harvest.html> [↑](#footnote-ref-1)
2. See Appendix 1 for WDR innovations data [↑](#footnote-ref-2)
3. See Appendix 2 for the WDR case data [↑](#footnote-ref-3)
4. See Appendix 3 for the WDR references data [↑](#footnote-ref-4)
5. “Shadow IT is hardware or software within an enterprise that is not supported by the organization’s central IT department. Although the label itself is neutral, the term often carries a negative connotation because it implies that the IT department has not approved the technology or doesn’t even know that employees are using it.” <http://searchcloudcomputing.techtarget.com/definition/shadow-IT-shadow-information-technology> [↑](#footnote-ref-5)
6. Assuming 3 applications created per Zones/Delegations plus GVA departments, yields 18 apps versus a portfolio of 60 apps in GVA-ISD. 23% of the 3M ISD Project Budget is 690K CHF. [↑](#footnote-ref-6)
7. Wikipedia entry on “Shadow IT”, here: <http://en.wikipedia.org/wiki/Shadow_IT> . Also compare the *Economist* article, “IT’s Arab spring”, Oct. 8, 2011, here: <http://www.economist.com/node/21531112> [↑](#footnote-ref-7)
8. The data from a March 2013 tally, resulted in the following on “push-mail” user growth from 2007 to 2013:

   Zero in 2008 (when we launched 2007 Exchange server)

   Pushmail 204 44%

   BB 261 56%

   Total 465 [↑](#footnote-ref-8)
9. For example, the ICT Capacity Survey found over 50 volunteer management applications across 75 National Societies who completed the more detailed applications inventory. Most all were customized applications. Assuming an average cost of 50K CHF per application, that’s a 2.5M CHF missed opportunity. [↑](#footnote-ref-9)
10. At Save the Children, an HR application developed by an enterprising staff worker in Pakistan was shared with the Nepal and Philippines office, which became dependent on it without the knowledge of the HQ IT department. When the developer left the organization, there was no one who knew the application and could support it. And the IT department was surprised it existed when the regional manager asked for help. This is a classic case of Shadow IT and its downside. [↑](#footnote-ref-10)
11. “RMS Evaluation and Shadow IT” 29 June 2012 presentation to the ITSG. [↑](#footnote-ref-11)
12. See the ITSG meeting minutes excerpts in Appendix 4 [↑](#footnote-ref-12)
13. “Discover and Harvest”, <http://eghapp.blogspot.ch/2010/05/discover-and-harvest.html> [↑](#footnote-ref-13)
14. A budget estimate is provided in Appendix 5 [↑](#footnote-ref-14)
15. This is the approach Cisco, for instance, takes. See the 2009 [McKinsey interview with John Chambers](http://www.mckinsey.com/insights/high_tech_telecoms_internet/mckinsey_conversations_with_global_leaders_john_chambers_of_cisco), where he notes “…as tough as this is, this is when you have a chance to make change. And, while I always wish we had avoided it, how you handle what we call market transitions—and part of that is economic challenges—determines where you are in the future. And unfortunately, the more disruptive they are, actually, the more opportunity they offer.” [↑](#footnote-ref-15)