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***The Role of Information Technology in Crisis Management***  
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Ladies and gentlemen,

It is a pleasure to be here in this 14<sup>th</sup> EINIRAS conference and I would like to thank the organisers for inviting me. My background organisation, Crisis Management Initiative (CMI) is a Helsinki-based non-governmental actor aiming to respond to new security challenges. The objective of CMI is to enhance the crisis management capacity of the international community and to find solutions to global problems and divisions. CMI was founded in 2000 by former President of Finland, Mr. Martti Ahtisaari. As was mentioned, I am working as the programme director for the Crisis Management Capabilities Programme. For the past three years one of the key areas of our work has been the use of ICT in humanitarian assistance and crisis management. In the end of my talk I will discuss in more detail some of our projects in this field.

In the following I would like to address the role of information technology in crisis management from two different perspectives. First, how we can use ICT to support the work of the international community in crisis areas and second, how we can support the recovery of local government in post-conflict countries with information technology. Finally I would like to discuss some of the key principles and recommendations how to improve both the sharing of information in crisis situations and the tools to do that in a more secure and speedy manner.

### **The challenge**

Over the past decade, the international community has responded to an increasing number of major political conflicts. The interventions have become ever more complex and multifaceted, extending from peace-enforcement to peace-keeping, from policing to nation-building, from humanitarian relief to reconstruction and development. Because of the width of this challenge, the crisis scene is crowded with multiple mediators, civilian agencies, military crisis management forces, development agencies, individuals, hundreds of NGOs, the media and private businesses, all seeking to make a change.

In many cases, organisational relations and responsibilities are not necessarily clearly delineated – such as in the relations between military and civilian operators in both national and international emergencies. And as no single authority exists that can manage the various responders to crises, international peace-building efforts are often confused, difficult and even chaotic in the field.

In this chaos, the international community has a shared objective to stabilise and rebuild a country after a conflict. The aim of the international community is to leave behind a country with sustainable democratic structures, civil society, functioning rule of law and economy. Accomplishment of this objective requires efficient coordination of activities and sharing of information between organisations working in the field as well as access to new data and databases, such as images, maps, and geographical, building and infrastructure information.

On the other hand the conflict often leaves the country devastated. In many cases in civil wars and ethnic conflicts it is a deliberate target to destroy both government infrastructure and databases and information. Particular targets are land and citizens registers – warring parties want to humiliate people by taking away their identity and property. As you know this phenomenon was widely spread for example in the Balkans.

## Improving the work of the international community

Information does play a vital role in humanitarian assistance and crisis management. The use of ICT can improve the effectiveness of the work of the international community in several different areas such as:

- decision-making
- institutional memory and knowledge management
- coordination
- situational awareness

I will briefly talk about each of these four areas.

### Decision-making

Proper management of information and the resulting analysis of crisis situations are crucial for informed decision-making and the effective use of resources. In any crisis management situation, the critical factor in making timely, appropriate decisions is to have the benefit of the optimum amount of quality information.

This information may come from a variety of sources that need to be integrated in an information system that is appropriate for the environment in which it is used. The situations on the ground are often extremely complex and volatile and can change rapidly without warning. A coherent and coordinated reaction can only be based on accurate information that must be produced and transmitted with speed and precision.

The reasons for the lack of good information during the post-conflict reconstruction phase according to the NGOs in Kabul that we have interviewed, ranged from the sheer danger of being seen to possess technological equipment—which made them targets of attacks to steal the equipment, resulting in their not taking equipment outside of Kabul or using it visibly inside the city—to ignorance about the difference between agricultural and demographic maps and how the information they contain is not interchangeable and tantamount to misinformation, to the inability to receive current security information because of the firewall between classified and unclassified information among the civilian and military actors in the field. The outcome of all these short falls of information was poor security for the workers and thus poor service for the people inadequately served by the NGOs who lack critical information on which to act. A perilous situation for all concerned is the ultimate outcome of the lack of information interoperability.

Better use of ICT would provide access to critical, real-time decision-making information – getting information to people in a timely manner to save lives, limit damage and accelerate recovery.

It has to be noted that no significant technical problems exist in the field of crisis management—only organizational obstacles and unwillingness to share information. These largely stem from policy and management issues inherent in the nature of organisations and bureaucracies. Resolving them is a gradual and fitful process, which naturally frustrates those attempting to introduce efficiencies through ICT practices and procedures.

### Institutional memory – knowledge management

Crisis management operations are characterised by a rapid turnover of staff. People are often working on the basis of a six month contract. Sometimes they are renewed, sometimes six months in crisis environment is more than enough for international civil servants. Often there is no handover period at all – the new officer arrives after the predecessor has departed. It is easy to imagine what kind of challenges this creates for information management and institutional memory in the organisations. And the effectiveness of the work suffers tremendously.

I remember myself arriving to Bijelina in Republika Srpska, in January 2000 as the OSCE democratisation officer. There was no information left about the work and projects done during the past three years. No files about the political parties, NGOs and local governments that I was supposed to start working with.

Institutional memory is related to the issue of “lessons learned,” which organisations assemble from their last activity during a crisis as a review of their performance and what did or did not work. Although drawing up “lessons learned” by organisations from the military to the humanitarians has received universal support, to date few lessons have been systematically reviewed or institutionalised.

There is already more than enough capacity, and infrastructure is relatively inexpensive. However institutions still operate through business processes established before the information age. Vast amounts of information are stored on electronic media and exchanged over the Internet or intranets. But the main point is that the processes which allow this to be turned into useful information and intelligence are still very much in their infancy – most organisations do not know what they know. The technology to share information is there, but business drivers of knowledge sharing are still immature. Purchasing goods or paying people is relatively easy these days, but transforming data into intelligence is a business function that is much more complex, qualitative and requiring a high degree of sophisticated human thinking. The challenge is of information management, not of technology.

In addition to internal institutional memory, there is a lack of global institutional memory in crisis management. Past mistakes are repeated and lessons too often not learned. I have been fascinated by the Lessons Learned and Analysis Unit, which is an innovation of the EU Pillar of UNMIK in Kosovo in cooperation with the European Stability Initiative. Its goals are to carry out research and analysis of the challenges of institution-building and development in Kosovo, to gather best practices from around the world for use in Kosovo, to capture the lessons of Kosovo for use in other contexts, and to contribute to the development of international expertise in this vital area of international endeavours.

The particular role and function that the LLA fulfils is one that is becoming increasingly important; that of critical policy input and analysis. For these purposes this ad hoc operation should be fully integrated into the institutional and operational structures of an operation. The temptation is to see interoperability only in terms of management of operational units (humanitarian, medical, etc) however the LLA illustrates the need for policy functions to be integrated and fully interoperable so that key decision makers at all levels are apprised of the necessary information.

### Coordination

As discussed earlier, crisis management involves the activities of a great number of agents confronting the same problems but lacking shared or consistent knowledge, coordination or communications technology or a common user culture. As a consequence, different organisations work wastefully on the same problems, plan and take decisions without consulting other organisations and without access to up-to-date or adequate knowledge.

ICT would facilitate sharing of information and communication amongst multiple organisations and agencies. It would help to identify and reduce redundant efforts quickly. There are many examples of duplicate efforts going on in parallel, usually with the best of intentions. It is often required to develop manual systems in the first instance – simpler is better in most cases, especially in real-time situations. It should be recognised that nothing can be relied upon to work in emergency situations – what if there is no power, no Internet and so on. If there is power and water and other supplies, it may be possible to use ICT but in a non-connected manner.

The number and diversity of actors and networks involved in crisis management creates multiple coordination challenges. Organisations working in crisis management at any level, whether governmental, intergovernmental or nongovernmental, are competing for resources. One implication of this state of affairs is that organisations will not invest in initiatives that do not deliver concrete returns to them.

Information sharing and coordination requires connectivity and interoperability. Each of the institutions is governed by specific information sharing policies and operates a range of technologies to implement those policies. In the absence of investment in interoperability, many such systems are likely to be incompatible between (and sometimes even within) organisations.

This can become a particular obstacle for the effective coordination of crisis management within national governments – for example, in the area of response to flooding, which may require the mobilisation of resources from the military, civilian emergency services, government agencies responsible for preparedness, response and reconstruction, as well as non-governmental community groups and charity organisations.

There are three major barriers to establishing interoperability in this sense. The first is that between the different levels of crisis management – whether political, organisational, operational or technical – there are genuine issues of coherence in policy and practice, even within organisations. The second is that, within each of those different levels, for a number of reasons, there is frequently competition rather than co-operation. Crisis management is seen as a zero-sum game, where one actor's loss is another's gain – as opposed to an environment in which the value of resources can be multiplied by combining them. The third and final barrier is simply that the operational environment for organisations involved in crisis management works against longer-term partnership and planning. During crises there is little time to allocate resources to this type of development; between crises there is plenty of time but few resources to invest in such preparation.

In such instances, interoperability and information sharing 'problems' are often rooted in political, management and resource issues, rather than in significant technical obstacles. Organisational behaviour based on these issues tends to subscribe to more traditional ways of thinking about information. Such attitudes reinforce the position that information is more valuable if it is restricted rather than shared – rather than recognising it as an asset whose value increases in direct relation to its distribution – and fails to realise the potential of information sharing as a route to building the organisation.

In many organisations, however, the recognition of information as a key organisational resource has begun to change this type of approach.

It is actually in the self-interest of organisations to share information and to create systems that facilitate that sharing – for instance, for governments to ensure that their systems are in step with those of their regional neighbours and international partners. In this case, information sharing adds value to their existing resources (by combination with the information resources of other organisations) and thus increases their status as a key information resource for others. The value of sharing and combining information resources outweighs the transaction costs involved in working with other organisations.

### Situational awareness

Proper use of ICT would also have great impact in improving situational awareness in crisis environment where dozens of actors work without knowing enough about each other's activities. The lack of information sharing and their associated tools have been noted as key contributing factor in some of the recent incidents resulting in death or injury of international personnel. The concerted use of ICT in crisis management can improve the safety and security of all crisis

management personnel in crisis areas. Functioning information sharing between organisations improves situational awareness and creates opportunities for early-warning on threats and prevention of conflicts.

## **Support of the local governments and civil society in post-conflict countries**

Now I would like to turn to the support of the local governments and civil society in post-conflict countries.

The final objectives in peace support operations and in crisis management are to restore and enhance local capacities and build sustainable and democratic societies. ICT used in international field operations could be transferred to the local authorities of the host country. The use of information technology is a feature of all societies, and a peaceful, modern, open and democratic society certainly should include constructive use of the potential of ICT both by the government and by civil society for the process of construction of good governance.

Crises are often a consequence of the failure of systems of governance and representation and natural disasters. The resolution of a crisis often lies in restoring domestic governance capacity. This may include the capacity to organise elections or the ability to deliver humanitarian aid in the event of a natural disaster. The implementation of ICT solutions to crisis management situations should be inclusive in their design to enable a transfer of governance capacities to domestic authorities, delivering governance and sustainability.

Today's new information and communication technologies would make it possible to develop new tools for peace-building that would allow people to take charge of their own destiny much sooner than is currently evident in the case of traditional assistance programmes. To develop such new tools would require an active partnership with the private sector to help international organisations to re-think peace-building operations, to improve its delivery mechanisms and to provide a better service to those we ultimately work for, people in post-conflict countries and failed states.

Peace-keeping operations must first and foremost concentrate on creating an environment that enables local communities to mobilize local talent and respond quickly to basic local needs. These aspects make peace-building operations around the world similar enough to develop ready-made tools that would help provide such an enabling environment.

Modern ICT can help making these tools possible. These new technologies can provide ready-made modules for managing and administering specific areas of activities such as managing local basic health administrations or local civil registrations. Those modules could be made easy-to-handle so that local administrators could be trained relatively fast in using them. At the same time, they would allow central monitoring of activities by producing real-time reports.

I would consider local ownership the most important aspect and a new civilian intervention tool must help handing-back of responsibility to local entities. There will simply be no peace-building without local people feeling that they are in charge and that they will have a stake in their own future. No number of international organisations, no quantities of international expertise and no size of external funding could compensate for a lack in local participation and ownership.

## **Key recommendations**

I would like to make some recommendations how to improve the use of ICT in crisis management.

At the political level, clearly understood frameworks for co-operation need to be put in place in order both to agree on policies for information-sharing and implement ICT standards to ensure that those policies can be acted on.

ICT initiatives need to look at the commonalities between previous operations to predict what shape future demands might take and develop appropriate solutions based on those predictions.

The most important factor in the success of ICT implementation within organisations is investment – not just financial and human resources, but also in terms of management support based on recognition of the strategic importance of it.

User involvement in the ICT development processes is a fundamental necessity. The most basic requirement for achieving good internal communication practices and interoperability among crisis managers is the need for the organisations to recognise, understand and communicate their needs to ICT solution. ICT projects must, in the final analysis, be based on needs. Only on the basis of *actual* needs can technology solve *actual* problems.

*There are a number of key factors that will contribute to the successful introduction of ICT into the field. Amongst them are the following:*

- Portability. Mobility is frequently vital for aid workers in the field, who cannot afford to be tied to an office-based system, and so ICT must be easy to transfer between locations.
- Durability. The rigours of a harsh working environment – during a natural disaster, or a conflict situation – mean that standard products may not be suitable.
- Flexibility. Proprietary software represents a dilemma to many organisations. Off-the shelf packages meet most of the needs of most organisations, but are limited when used by non-technical staff.
- Simplicity. Products and services cannot afford to place additional learning burdens on field workers, and should minimise the need for training and support.
- Affordability. Funding constraints are a constant in field operations, and interventions must be low cost.

Partnership with business is a precondition for secure, sustainable and up-dated ICT solutions for crisis management. The cost of developing own ICT systems is enormous and this forces organisations to look very hard at what is commercially available right from the start. I have always had the opinion that there is rarely any point in doing things that somebody else can do better. In ICT, the private sector has a lot to offer to governments, international organisations and NGOs, and one key aspect of introducing ICT to crisis management is building relations with the private sector.

ICT solutions for crisis management should be based on open standards and commercially available solutions and not tied to a certain provider.

Standardisation: Information systems depend on standards – not just in terms of hardware and software, but also in terms of staff capacity – and the international community needs to move towards standardisation if it is to take advantage of ICT. Only standardisation at every stage in the information cycle will allow information to be integrated and compared across different organisations.

### **About the work of CMI**

Finally I would like to say few words about the work CMI is doing in this field.

CMI has initiated an annual conference on Information Technology and Crisis Management to create a forum for dialogue on ICT matters among international organisations and to foster communication between them and industry representatives. The conferences aim to increase the publicity and awareness about the importance of interoperable ICT systems in crisis management among decision-makers in national governments, international organisations and NGOs. The next conference is on 3-6 November in France with the title Security- the Common Denominator for Connectivity.

The Crisis Response Executive Advisory Team, was established to support of the Information Technology and Crisis Management (ITCM) Project and the Object Management Group's C4I Domain Task Force (OMG C4I). It aims to give guidance to these concrete projects and to establish a more structured co-operation between international organisations and information and communication technology vendors in order to deliver interoperability solutions and standards suited to humanitarian emergencies and modern crisis response and management. In addition, CMI with different partners organises outcome-oriented meetings/workshops on specific issues to solve concrete problems in information sharing and interoperability.

But CMI is a think and do tank – we want to support concrete initiatives that try to make an impact in the field. Therefore CMI has participated in developing together with user organisations and private sector ICT concepts for CIVILIAN crisis management including interface with military to enhance the efficiency, effectiveness and professionalism of field operations.

> ITCM – ITCM is a command and control and information sharing system for civilian organisations that provides an interface with the military component. It is based on open standards and commercially available products. The prototype was tested in the Nordic Peace 2003 PfP exercise in Finland in September 2003 and will be demonstrated in field environment (Bosnia Herzegovina) during October.

> CMO – Crisis Management teleOperator is a concept for service provider that would offer extensive communications and data transmission services for the field organisations to use both within and between themselves in a crisis area from the first day of an operation. It draws from the Finnish experience from the official VIRVE network and the communication systems used by the Finnish Defence Forces in Kosovo. The Finnish government (Ministry for Foreign Affairs, Ministry for Interior and Ministry for Transport) is currently carrying out a feasibility study of the concept.

> GooB – Government out of Box – basic civilian administration ICT tools for national, regional and local governments in failed states or post-conflict countries. The concept was developed together with the CMI, OSCE, Oracle, Accenture, UNISYS, Ericsson and TeliaSonera and presented on 21 June 2004 in New York to the UN agencies, EU, OSCE, World Bank and key donor governments. The feasibility study and a pilot implementation will be developed by the tri-partite task force to be established in October 2004.

## **Conclusions**

To end with I would like to underline that improving the quality of information and the use of information and communications systems in the field are not aims themselves but means to support the achievement of the political objectives, to rebuild institutions and infrastructure within a country to create conditions conducive to peace and development.