Only Connect:
Problem Sciences, Information Systems and Humanitarian Reform

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ABSTRACT

The introduction of information systems and the humanitarian reform process are both having a tremendous impact on the way that humanitarian assistance is delivered – yet the two processes are extremely weakly connected. As a result, the humanitarian community is failing to realise the potential that information technology has to support key aspects of the reform process, but also failing to recognise that technology is likely to render many of the discussions around reform moot. The balance of knowledge is shifting towards those affected by disaster, implying that they will become increasingly empowered by technology to more effectively cope with the impact of those disasters. Traditional actors in the humanitarian community must incorporate these realities into its own processes or risk being overtaken by newer and more agile institutions which may not be so concerned with humanitarian principles.

Keywords: disaster economics; humanitarianism; technical reform

INTRODUCTION: PROBLEM SCIENCE 101

In his book on the limits of science, Impossibility, Barrow (1998) suggests that:

When their activities become very expensive and have no direct technological or military relevance to the state, then [scientist's] continued support will be determined by other great problems that confront society. In the future, we might expect the development of what we will call the "problem sciences" —those studies needed to solve the great environmental, social, and medical problems that threaten humanity's continued existence and well-being.

This article takes as its starting point the idea that, while the state – and particularly the military – continues to play a large role in the development of new technology, the first seeds of the problem sciences could already be seen at the end of the twentieth century. The appropriate technology movement of the 1970s identified the need for "trailing edge" technology to meet the needs of poorer communities, preferably rooted in innovation that emerges from those communities themselves, rather than wholesale adoption of existing "rich world" technology.[1] This fits with the "Shock of the Old" thesis,

in which Edgerton (2007) introduced "the concept of creole technologies to suggest that the technology poor world cannot be reduced either to its stock of rich world technologies, or traditional, local technologies, or hybrids between the two. A new technological world of technologies derived and adapted from those of the rich world in complex ways, and then often entering into hybrids, are some of the complexities the term seeks to capture."[2]

These creolization processes must be viewed in light of another significant trend – the "remarkable acceleration of the speed at which technologies trickle down from leaders to followers during the postwar period" (Comin & Hobijn, 2003). Comin & Hobijn attribute this primarily to changes in governance, regulation and capital, with little discussion of how radical shifts in mass communication have affected the diffusion of other technologies. Three key trends – the spread of personal computing, internet access and mobile telephony – are particularly significant in this respect, gradually converging all around the world to create entirely new modes of sharing information. While information technology is not usually thought of as "appropriate", the personal computer as a "universal machine" is ideally placed for creolization. This is reflected in its relatively rapid uptake in developing countries, the main constraint being that:

high levels of educational attainment are important determinants of computer-technology adoption, even after controlling for a variety of other macroeconomic variables… The effect is quantitatively substantial… a one-percentage-point increase in the fraction of the labor force who have better than primary education leads to an increase in computer investment per worker of roughly 1%. (Caselli and Coleman, 2000)

This in turn has a strong effect on limiting internet access (as well as limiting demand for internet access), which projects such as the Simputer and One Laptop Per Child (OLPC) XO[3] are intended to redress. Although there is an ongoing debate about the role of computers in basic education (especially given other constraints on education in many developing economies), these low-cost laptops can be viewed as part of the first wave of "appropriate IT". However more recent developments suggest that computer access will not be the main determinant of internet access in future:

The information-poverty of developing countries has helped make the impact of mobile all the more powerful, as mobile penetration… has increased even more rapidly in poor countries… The importance of mobile communications in the information-poor context of developing countries enhances their potential contribution in disasters, even greater than in the developed world with its richer infrastructure. (Coyle, 2005)

This vision of mobile telephones as the primary means of mobilising resources to support the individual or community response to disaster has been supported by research carried out by the UK Department For International Development, which found that:

The most substantial value of the telephone in terms of livelihoods is in its impact on overall vulnerability, particularly in emergencies. The telephone here has exceptional added value compared with other communications media, in particular because of its immediacy, interactivity and ability to secure assistance from afar. (Souter et al., 2005)

These trends are important because they represent a shift in the global balance of knowledge – and knowledge is power. It is hardly credible that the information revolution will grind to a halt, and as a result the empowerment of people around the world is likely to have a significant impact on every aspect of human society – including how we respond to disasters.

In terms of identifying solutions for the problems of disaster response, it is useful to divide them into two levels. The first is the

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