CyberGeomatic Intelligence – Historical Framework, Problem Definition and Importance of the Topic

(Or What Can Happen When the Digital Divide Is Finally Breached)

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Thomas P. M. Barnett has expressed the idea (Barnett, 2004) that the world can be divided into the *"Functioning Core"* characterized by a free flow of information and e-commerce vs. the *"Non-Integrating Gap"* that is typified as an area of failed nation-states or nations that host despotic regimes and where the majority of actions using the US military have occurred in the last 20 years. It has been stated in the past that this "digital divide" is one of the most significant issues facing undeveloped regions of the world. Even though the term itself denotes an understanding of being spatial in context, there have been very few efforts to examine the implied geographic assumptions underlying the discussions of the "digital divide." The proposed term "cyberspatial intelligence" means

"the exploitation and analysis of GeoInt and Cyber data sources to describe, assess, and visually depict geographically referenced activities on the Earth in terms of an "effects based" CyberGeomatic perspective." Thomas 2011.

This definition is not only about the physical mapping the internet. It's about the flow of information across the digital divide, the *effects* of connective technologies and in the redefinition of geographic terms like "distance" and "neighborhood." It's also about extending the lessons of geography to assist the understanding the effects that increased information and communications technologies (ICTs) are having as they are deployed into "the Gap." It is the contention of this paper that a better understanding of the effects and potentials of these technologies with a CyberGeomatic perspective will help alleviate what has been characterized as intelligence "blind spots." This paper looks at the connections between such topics as the digital divide, information theory as proposed by Claude Shannon, a connectivity and information flow model proposed by Dr. Thomas P. M. Barnett, and extends the discussion of the Map Communication Model (MCM) proposed in the 20th century to the concepts proposed by critical cartography and its implications in social media for the intelligence community at large.

The objective of any intelligence discipline is to apply sources, sensors, and analysis in order to provide a decision advantage or enhance a decision confidence. The current intelligence disciplines arose out of a change in environment and technology to provide a unique perspective [Finley, 1995]. Like the tale of seven blind men examining an elephant, each of them is focused on an object, not directly on a relationship between the parts. Current recognized intelligence disciplines include: Open-Source (OSINT), Human (HUMINT), Signals (SIGINT), Geographic (GEOINT), Measurements (MASINT), Technical (TECHINT), and Counter Intelligence (CI) [CJCS, 2007]. Combined by a talented analyst, they can provide great insight. Today, these disciplines leverage analysis tools to add value to analytical products and enhance analytical capacity to spot non-intuitive linkages. However, CYBERGEOMATIC Intelligence is a discipline, not a tool set. CYBERGEOINT can provide insight into relationships to build a representation of threat functions and describe the behavior of a system of systems. This methodology can potentially provide both decision advantage with new insights and enhance decision confidence through adapting repeatable quantitative processes. Data sources include other intelligence domains, GPS satellites as well as social media. Unique sensors can produce population indexing, sentiment analysis, and models of human intent [Howard and Guidere, 2011; Blair-Goldensohn, 2010]. Rooted in

US Air Force targeting processes during World War II and Army Special Operations targeting processes established during the Vietnam War, CYBERGEOINT can address many of the challenges inherent in identifying mechanisms and measuring effectiveness to support Effects Based Operations [CJCS, 2007; Davis, 2002].

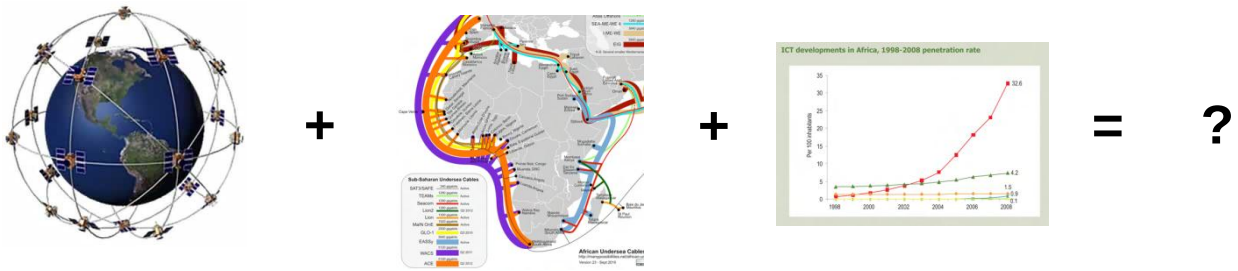

Figure 1. Using Africa as a Meta-model, the combinations of 24-7 GPS location technology (external infrastructure and global in nature), the exponential increase of external connectivity of fiber optic planned or already installed since 2009 (external infrastructure and regional in nature) and the exponential growth of the wireless phone market (internal infrastructure and local in nature) makes the future of the continent as a whole unknowable using current methods. What has already occurred in the Mahgreb may pale in comparison with what's to come in the near term based on the impact of georectified enabled ICTs in sub-Saharan Africa. Original graphic by M. Thomas.

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