Increasing the Flexibility of Legacy Systems

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ABSTRACT

Flexibility is what people seek when striving to increase or expand economic and social choices, equity, and technological innovations. Flexibility provides the robustness needed to adjust to changes such as those arising from a warmer/colder world, and the actions required when managing threats from and results of social strife, economic downturns, environmental catastrophes, infrastructure disruptions, and war. Flexibility is easy to praise at the level of principle, if allowed that a bit of stability and resistance to change does have merit. At the level of practice or operations the concept is most illusive, and explaining what flexibility means, why it is thwarted, and how it might be obtained is a challenging task. This paper begins by contrasting views of systems and their behaviors. Alternative explanations for behaviors thwarting flexibility are identified. Consequences of inflexible, locked-in development paths are illustrated using examples from transportation and similar systems. Suggestions for increasing flexibility are made after examining system behaviors in dynamic contexts. Academic, government, and industry experiences inform and color interpretations.

Keywords: Applied, Behaviors, Flexibility, Research Design, Systems, Transportation
The Anderson Lecture is the foremost event of the AGSG at the Annual Meeting of the Association. The Lecture serves as a venue for Anderson Medal recipients to discuss their careers in and contributions to applied geography, and provides an opportunity for attendees at the Annual Meeting to witness the individuals selected to receive the Anderson Medal. Anderson Lecturers to date are Jack Dangermond (2002), Brian Berry (2003), Tom Wilbanks (2004), Barry Wellar (2005), and T. R. Lakshmanan (2006).

The 2007 Anderson Lecture is presented by William L. Garrison, Distinguished Professor Emeritus, from the University of California at Berkeley. Dr. Garrison was awarded the Anderson Medal in 1994. On behalf of the Applied Geography Specialty Group, and present and future transportation geographers of every kind, it is a pleasure and a privilege to welcome William Garrison as the 2007 Anderson Lecturer.

In addition, it is a pleasure and a privilege to welcome Ross MacKinnon, who will introduce Dr. Garrison, and to recognize William Black, Arthur Getis, and Waldo Tobler who accepted the invitation to discuss the text, slides, and remarks presented by Dr. Garrison. All the supporting participants in the 2007 Anderson Lecture have a longstanding affiliation with William Garrison. Renowned geographers Arthur Getis and Waldo Tobler were graduate students at the University of Washington when Garrison was on faculty at that esteemed hub of transportation studies early in his career. Then, while at Northwestern University and triangulating among offices in Geography, Civil Engineering and the Transportation Center, Garrison taught graduate courses taken by Ross MacKinnon and Barry Wellar, and directed projects for which they were research assistants. Bill Black, who trained at the University of Iowa, has had a professional association with Garrison for many years. In all cases, members of the supporting cast immediately agreed to participate in this session.1, 2

INTRODUCTION TO WILLIAM GARRISON

Ross MacKinnon

I first learned of William Garrison when I was an undergraduate at the University of British Columbia. As a third year student in 1963, I became excited about what had happened in the Geography Department at the University of Washington, just a couple hours away and 6-7 years before. For my bachelor’s thesis, I did a variation of Brian Berry’s central place Snohomish County study for a county in Ontario. But it was the transportation stuff that I believed was my calling. Transportation linked places, caused them to change and the changed places, in turn, gave rise to transportation changes. Garrison, the natural inheritor of Edward Ullman and his regard for geography as spatial interaction, seemed to have the ideal portfolio of interests for me. Moreover, he apparently had so many very accomplished students—Berry, Marble, Tobler, Dacey, Nystuen, Morrill, Getis, Bunge, and others!

So I chose to go to Northwestern for graduate studies, because it apparently didn’t get much better than this from a transportation geographer’s perspective. Garrison with a newly arrived Duane Marble, and it had the Transportation Center.

It wasn’t until the end of the first quarter before I actually encountered Garrison. He had a professorship in Civil Engineering, where he spent much of his time. I was talking to Duane Marble about classes for next semester in one of those rather oversized offices in University Hall when this older fellow (I was 22 at the time!) wandered in and sat down, at the end of the room, and started leafing through journals and research papers. I was trying to find a philosophy of science course to take next quarter. Duane: “Bill, is there anything good in philosophy
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