

**To:** Transport & Health Policy Makers, & Practitioners  
**From:** Professor Adrian Davis  
**Date:** 8<sup>th</sup> September 2021  
**Subject:** Essential Evidence 4 Scotland No.43 Paradigm shift or new worldview required for transport planning?

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Top Line: The concept of paradigm shifts has helped thinking in areas such as transport planning. However, a more holistic concept such as a new worldview may be needed which addresses many of the barriers which impede the necessary paradigm shift in transport planning to demand management. Thus we first need a shift in the dominant worldview towards more ecological approaches to living than is currently so.

The concept of paradigms was developed by Thomas Kuhn in his 1962 book, *The Structure of Scientific Revolutions*.<sup>1</sup> At the time this provided a radical new way of understanding scientific progression of concepts and ideas. It included the 'dominant paradigm' as a way of seeing which had gained ascendance as the dominant concept, e.g. Darwinian evolution, and in so doing toppling a previous dominant paradigm as well as winning through against vying alternatives. At the time Kuhn wrote 'I aim to help in producing a revolution in the way people think about science'. Despite many critiques the concept of paradigms remains in our common language and in regular use as well as within the field of the History of Science.

Transport planning is undergoing its own paradigm shift according to some researchers, and it is changing the way we define transport problems and how we evaluate transport system performance, the range of planning objectives and impacts considered when evaluating these options, and the types of solutions considered for solving transport problems. Litman notes that the old paradigm, dominant in many High Income Countries from the 1950s, evaluated transport system performance primarily on the speed, convenience, and affordability of motor vehicle travel - and so favoured automobile-oriented improvements.<sup>2</sup> The new paradigm is more comprehensive and multimodal. It considers a broader range of modes, objectives, impacts, and improvement options. This paradigm shift has been described as a shift from predict and prove (increasing road network capacity) to predict and prevent (demand management). However, as Verlinghieri has noted, critical scholars have shown how this concept, with a strong emphasis on economic growth, has limited capacity to truly challenge the current transport-related environmental and social crises or to constitute an ecological worldview.<sup>3</sup> The belief that "economic growth and ecological problems can be reconciled" reflects a neoliberal framework, where the sustainable transport agenda remained based on "the economic imperatives of growth, competitiveness and profit seeking". Transport, as a derived demand, is inextricably linked to wider areas of public policy and evidence to date suggests that a move to demand management is unlikely unless forces at work in other areas of public life and policy, not least ideological barriers predicated on continual economic growth, are addressed first.

Drawing on other researchers, Verlinghieri points out that this mismatch between any proposal for a paradigmatic shift and the measures which have been effectively implemented to date is "an ideological one, rooted in fundamentally different value systems and worldviews – and this is where the intractability of the problem remains". The social and environmental crises we are facing require not just a paradigm shift, but a shift in value systems and the affirmation of new worldviews. *Worldviews* are systems of beliefs that give society an overall perspective from which to interpret the world.<sup>3</sup> Introducing new worldviews can give us new tools to challenge crises, encompassing "not only ecological concerns but also socio-political dimensions such as inequality, hierarchy, citizen participation, and decentralization". Worldviews go to the very core of the socio-political organization of urban life, and the very genesis of the crises.

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<sup>1</sup> Kuhn.T. 1962 *The Structure of Scientific Revolutions*. University of Chicago Press.

<sup>2</sup> Litman, T. 2013 *The New Transportation Planning Paradigm* *Institute of Transportation Engineers Journal*; 83 (6): 20-24, 26, 28.

<sup>3</sup> Verlinghieri, E. 2020 *Learning from the grassroots: A resourcefulness-based worldview for transport planning*, *Transportation Research Part A*, 133: 364-377.