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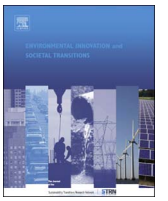

Transition versus transformation: what's the difference?

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ABSTRACT

'Transition' and 'transformation' have become buzzwords in political and scientific discourses. They signal the need for large-scale changes to achieve a sustainable society. We compare how they are applied and interpreted in scientific literatures to explore whether they are distinct concepts and provide complementary insights. Transition and transformation are not mutually exclusive; they provide nuanced perspectives on how to describe, interpret and support desirable radical and non-linear societal change. Their differences may partially result from their etymological origins, but they largely stem from the different research communities concerned with either transition or transformation. Our review shows how the respective approaches and perspectives on understanding and interpreting system change can enrich each other.

Converging and persistent global crises and problems, such as climate change, resource depletion and widening social inequality, have spurred interest in science and policy for systemic societal change. The ensuing calls for 'transformation' and 'transition' resonate the growing consensus that business-as-usual is insufficient for keeping humanity within a 'safe operating space'. Transition and transformation are often used interchangeably and mostly metaphorically to express the ambition to shift from analysing and understanding problems towards identifying pathways and solutions for desirable environmental and societal change. While the somewhat loose conceptualisations of transition and transformation can offer a broad basis for agreement and inspiration (Audet, 2014), a lack of conceptual clarity – especially regarding the features making change 'transformational' – can void the terms of their contribution to challenge the status quo (Brand, 2016). We compare how transition and transformation are applied and interpreted in scientific literature to discern whether they are distinct concepts and provide complementary insights for understanding, discussing and supporting complex and desirable societal changes.

A variety of research approaches have emerged to understand, analyse and support societal transitions or transformations.[1] In these approaches, transition and transformation are often employed in seemingly interchangeable ways to refer to radical, non-linear and structural change in complex adaptive systems (Feola, 2015, Patterson et al., 2016). 'Transition' is especially used by the sustainability transitions research community to denote fundamental social, technological, institutional and economic change from one societal regime or dynamic equilibrium to another (Rotmans et al., 2001). Research approaches concerned with global environmental change, such as resilience (Olsson et al., 2014) and transformative adaptation (O'Brien, 2012), adopted 'transformation' to refer to fundamental shifts in human and environmental interactions and feedbacks.

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[1] We do not claim comprehensiveness in listing relevant research approaches. We particularly focus on contemporary literature related to discourses on sustainability and environmental change (see also Feola, 2015, Loorbach et al., 2017, Patterson et al., 2016).

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Some scholars delineate transition vis-à-vis transformation. For example, in transitions research Geels and Schot (2007) consider transformation as one possible transition pathway. Other scholars differentiate transformation as more radical, large-scale and long-term changes from politically top-down and technocratic transitions – contrasting for example a transformation towards ecological agriculture and transitions towards sustainable intensification (Stirling, 2014, Brand, 2014).

While both concepts refer to change in complex adaptive systems, they are often employed to different system foci. This has implications on what elements of change are analysed. Transition has been mainly employed to analyse changes in societal sub-subsystems (e.g. energy, mobility, cities), focusing on social, technological and institutional interactions (Loorbach et al., 2017). Transformation is more commonly applied to refer to large-scale changes in whole societies, which can be global, national or local, and involve interacting human and biophysical system components (Brand, 2014, Folke et al., 2010). Industrial transformation approaches originate from innovation studies and focus on large-scale technological, institutional and environmental change in social-ecological industrial systems (e.g. agriculture, fisheries) to shift towards sustainable economies (De Bruijn and Norberg-Bohm 2005).

Transitions and transformations are complex and uncertain, but they follow specific patterns and mechanisms such as path-dependency, emergence and thresholds (Feola, 2015). Resonating the concept's etymological origin – transition having a core meaning of 'going across' (Brand, 2014) – transition analyses focus on the processes and dynamics producing patterns of change to explain 'how' the non-linear shift from one state to another is supported or hindered. Exemplary analytical frameworks are the multi-level perspective (Geels and Schot, 2007) and multi-phase model (Rotmans et al., 2001). Etymologically transformation means 'change in shape', and transformation analyses highlight 'what' it is that changes from emergent patterns of change and what are outcomes at a systemic level (Folke et al., 2010). An exemplary analytical framework is the panarchy-model, which enables to identify emerging social-ecological vulnerabilities, maladaptation and tipping points (Holling et al., 2002).

Transition and transformation depend on perceptions, values and cognition (Patterson et al. 2016). Both concepts are often associated with normative notions to describe the desirability of transition and transformation. The unsustainability of current societal systems is contrasted with a collectively defined sustainability orientation for desirable transitions and transformations (Loorbach et al., 2017, Olsson et al., 2014). Transformation is additionally applied in relation to concepts such as resilience and planetary boundaries, which support an assessment of potentially detrimental implications of undesirable transformations and orient desirable transformations towards 'safe and just operating spaces' (Folke et al., 2010, Raworth, 2012).

Actors play key roles in shaping desirable transitions and transformations through transformative agency and governance. Processes to shape transitions and transformations are deeply political, involving power struggles and value conflicts (Patterson et al. 2016). They include innovation (e.g. institutional, social, technological, economic), collaboration, learning and knowledge integration. Research approaches focusing on transitions provide analytical and operational tools to understand and develop disruptive interventions to support emerging transitions (Farla et al. 2012). Approaches concerned with transformations suggest governance frameworks and interventions primarily for dealing with emerging risks and disturbances and avoid undesirable transformations (Olsson et al., 2014). Their notions of transformative agency accentuate the role of intrinsic motivation, cognition, emotions and values as key dimensions of human agency for change (O'Brien, 2012).

The contrast between transition and transformation is not a dualism, but a duality – they are not mutually exclusive (Stirling, 2014). Both concepts provide nuanced perspectives on how to describe, interpret and support desirable radical and non-linear societal change (Table 1). Their differences may partially result from their etymological origins, but they largely stem from the different research communities concerned with either transition or transformation. Through their common interest in understanding and supporting desirable societal change, these different communities have moved closer together in recent years – as evidenced through the biannual Transformations Conferences or the Belmont Forum/NORFACE network call for research proposals. Our review

Table 1
Comparing applications of 'transition' and 'transformation'.

Dimension of system change	Transition	Transformation
System focus	Focus on complex adaptive systems	
	Social, institutional and technological change in societal sub-systems (e.g. energy, mobility, cities) (Loorbach et al., 2017)	Large-scale societal change processes (global, regional, local etc.) involving social-ecological interactions (Brand, 2014, Folke et al., 2010, De Bruijn and Norberg-Bohm, 2005)
Dynamics and processes	Complex and uncertain system patterns and mechanisms including path-dependency, emergence, thresholds	
	'How' non-linear change occurs focusing on dialectics between support and hindrances (Geels and Schot, 2007, Rotmans et al., 2001)	'What' are emergent patterns of change and how do these affect outcomes (Folke et al., 2010, Holling et al., 2002)
Normativity	System change is contested and can be desirable and undesirable	
	Outcome focus on shift from unsustainable to sustainable system state (Loorbach et al., 2017)	Outcome focus on creating safe and just operating spaces to avoid undesirable system change (Olsson et al., 2014, Raworth, 2012)
Agency and governance	Multi-actor processes enabling innovation, learning, collaboration and knowledge integration	
	Developing disruptive interventions to support sustainability transitions (Farla et al., 2012)	Respond to the implications of change (e.g. risks, vulnerabilities); individual motives and values supporting transformations (Olsson et al., 2014, O'Brien, 2012)

shows how the respective approaches and perspectives can enrich each other. For example, the criticism that the transitions concept would invite more narrow conceptions of system change that do not question existing power dynamics, can be addressed by linking it to large-scale changes, including nature, justice and requirements for adaptation and readjustment. This is for example illustrated in literature on industrial transformation, which connects economic change to environmental externalities. In turn, transition analyses contribute insights on how agency and governance can develop disruptive interventions to support desirable societal change.

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