

# **Smart Cities: Five Leadership Challenges for Systemic Transformation**

Professor Byron Keating (and Dr Shari Read)









United States  
Department  
of Agriculture

Forest Service

Rocky Mountain  
Research Station

Research Paper  
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# Fuel Treatments and Fire Severity: A Meta-Analysis

Erik J. Martinson and Philip N. Omi

Fuel management is critical to reducing the severity of wildfires.





*Journal of Vegetation Science* 26 (2015) 102–113

## **Native and exotic plant species respond differently to wildfire and prescribed fire as revealed by meta-analysis**

Christina Alba, Hana Skálová, Kirsty F. McGregor, Carla D'Antonio & Petr Pyšek

### **Keywords**

Biological invasion; Disturbance regimes; Fire management; Plant community; Plant community performance

### **Abstract**

Wildfire and prescribed fire are major drivers of plant community change. We assessed the global literature describing the responses of native and exotic species groups to wildfire and prescribed fire and characterized the geographic and temporal scope of the data to inform research needs.

**Location:** Predominantly the United States of America and Australia.

**Methods:** We used meta-analysis to (1) test whether native and exotic species composition (richness or diversity) and performance (cover, density and bio-

Plant species in grass and bush habitats are very susceptible to wildfires.

Correspondence: Christina Alba (calba12@gmail.com), Hana Skálová, H. (hana.skalova@ibot.cas.cz), Kirsty F. McGregor, K.F.

# Meta-analysis of avian and small-mammal response to fire severity and fire surrogate treatments in U.S. fire-prone forests

JOSEPH B. FONTAINE<sup>1,3</sup> AND PATRICIA L. KENNEDY<sup>2</sup>

<sup>1</sup>*School of Environmental Science, Murdoch University, 90 South Street, Murdoch, Western Australia 6150*

<sup>2</sup>*Department of Fisheries and Wildlife and Eastern Oregon State University, 1000 University Avenue, La Grande, Oregon 97603*

<sup>3</sup>*University of Western Australia*

## Abstract

Fire severity was strongly correlated with avian and mammal response.

We synthesized the response of avian and small-mammal species to fire severity (low, moderate, high), fire surrogates (forest thinning), and prescribed fire treatments in the most extensively studied fire-prone, fire-prone forests of the United States. Effect sizes (magnitude of response) and their 95% confidence limits (response consistency) were estimated for each species-by-treatment combination with two or more observations. We found 41 studies of 119 bird and 17 small-mammal species that examined short-term responses ( $\leq 4$  years) to thinning, low/moderate- and high-severity fire, and thinning plus prescribed fire; data on other taxa and at longer time



Evaluate fire causes

Tackle rising CO<sub>2</sub> emissions

Detect fire outbreaks

Save lives faster

Preserve biodiversity

Reduce asset damage

We have many smart evidence-based tools to help manage risk... BUT

A man with glasses and a surprised expression is sitting on a beach chair. He is wearing a red shirt. In the background, there is a tropical beach with a thatched umbrella, palm trees, and a bright blue sky. A large, dark, billowing plume of smoke or ash rises from the ocean in the distance, suggesting a volcanic eruption. A yellow diagonal banner is overlaid on the bottom right of the image.

LOOK! YOU CAN SEE  
AUSTRALIA FROM HERE!

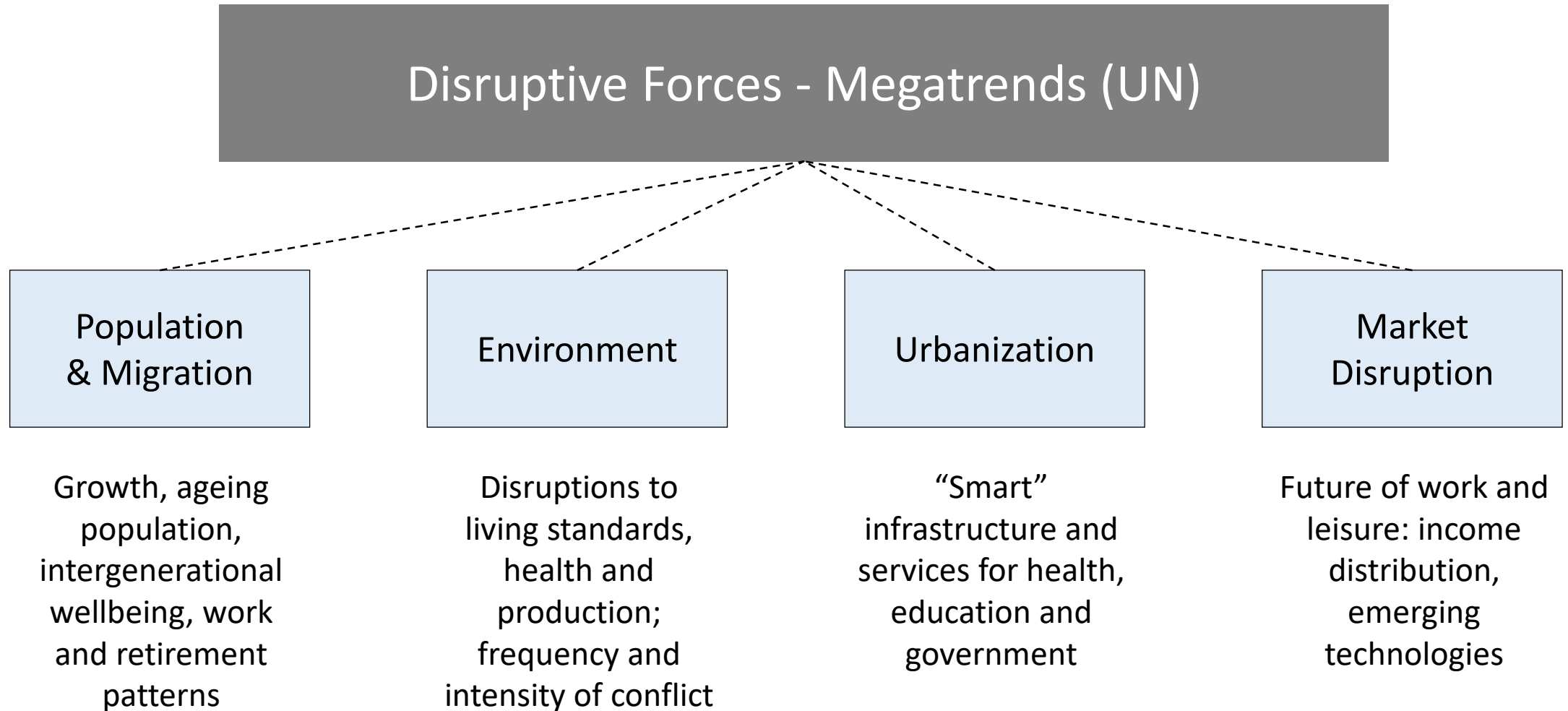
Systemic transformation is as much a leadership as a technology challenge.



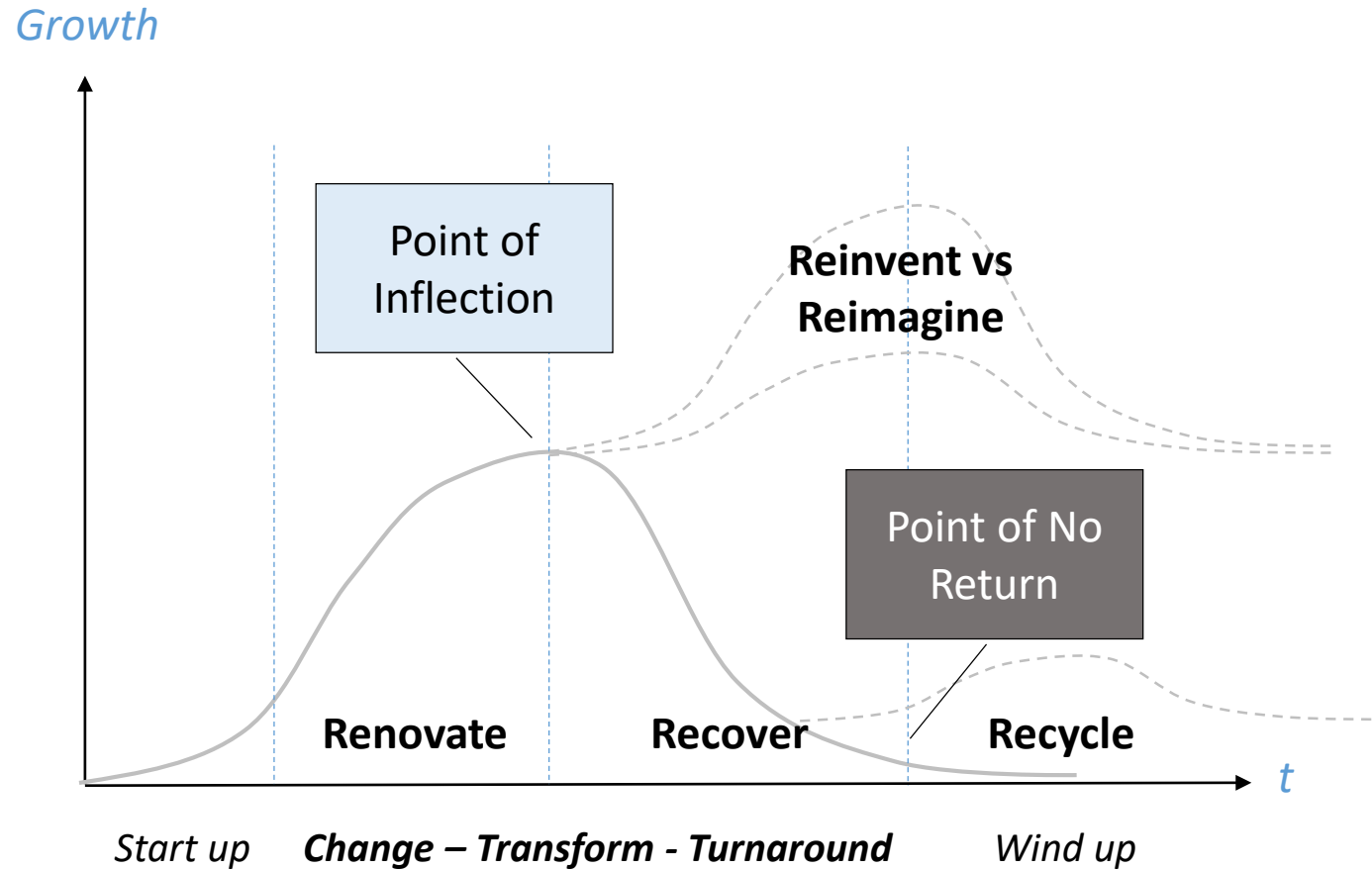
# **Smart Cities: Five Leadership Challenges for Systemic Transformation**

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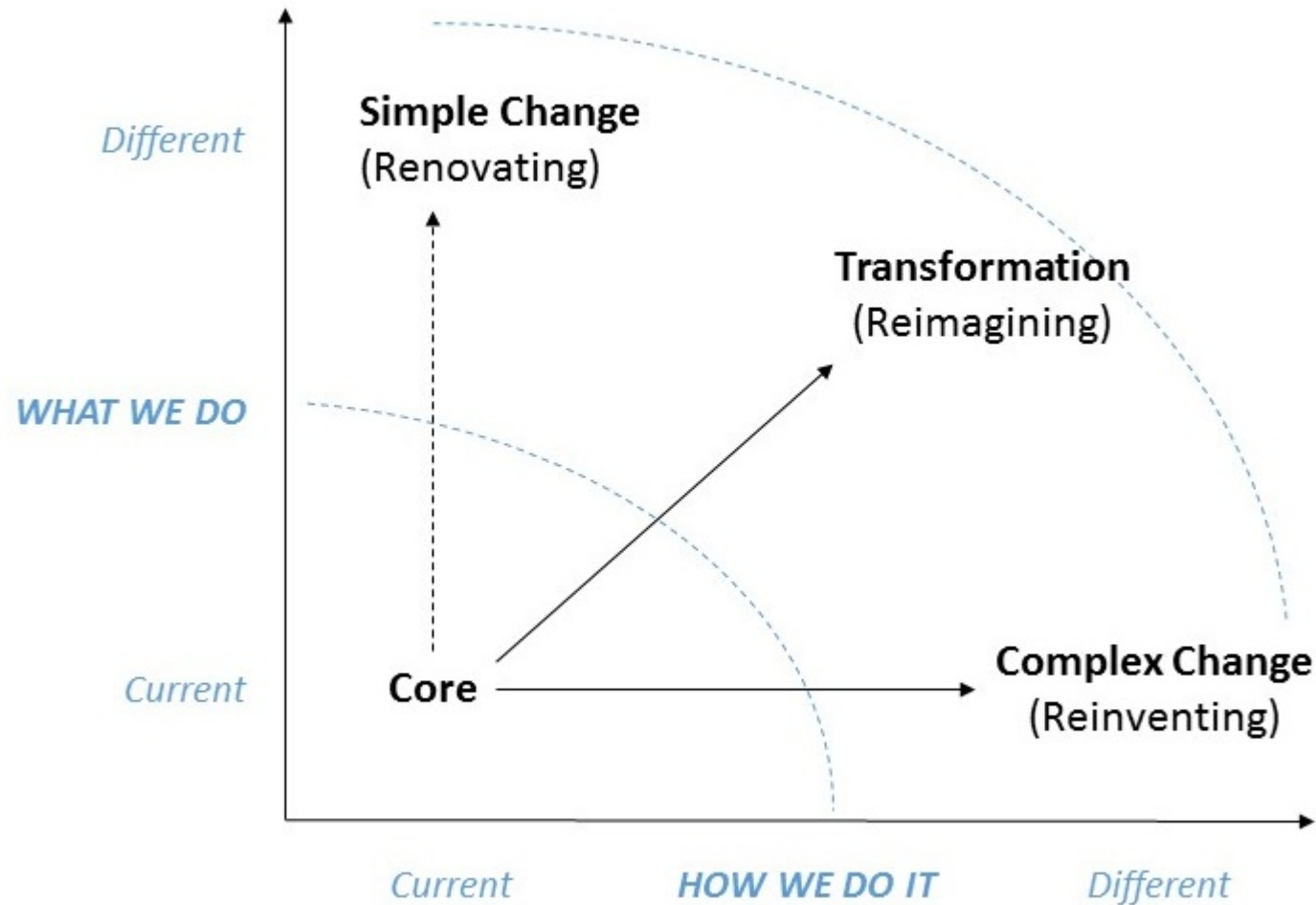
# Challenge 1: Smart cities represent a convergence



# Challenge 2: Understanding transformation

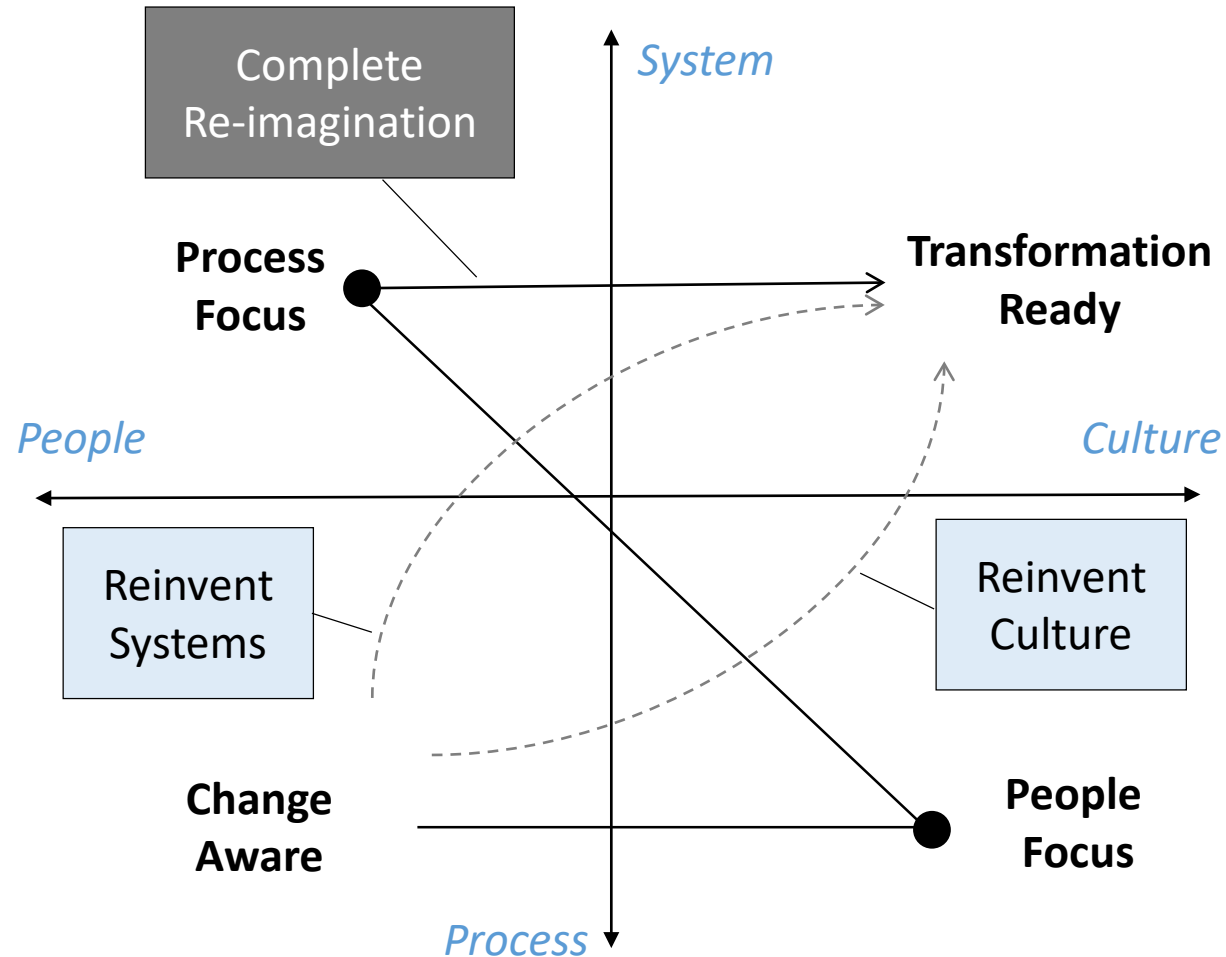


# Challenge 3: Leading transformation (dual priorities)

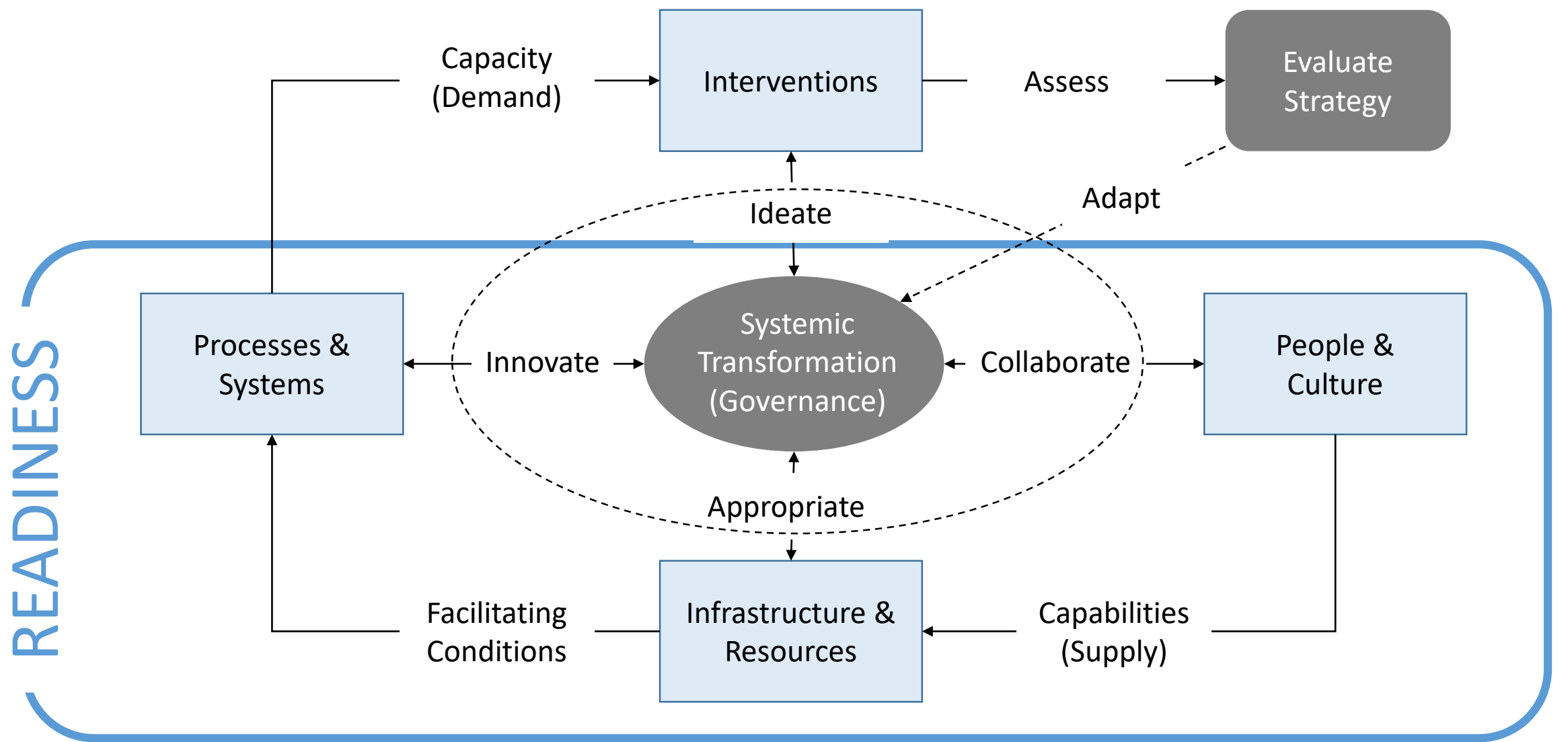




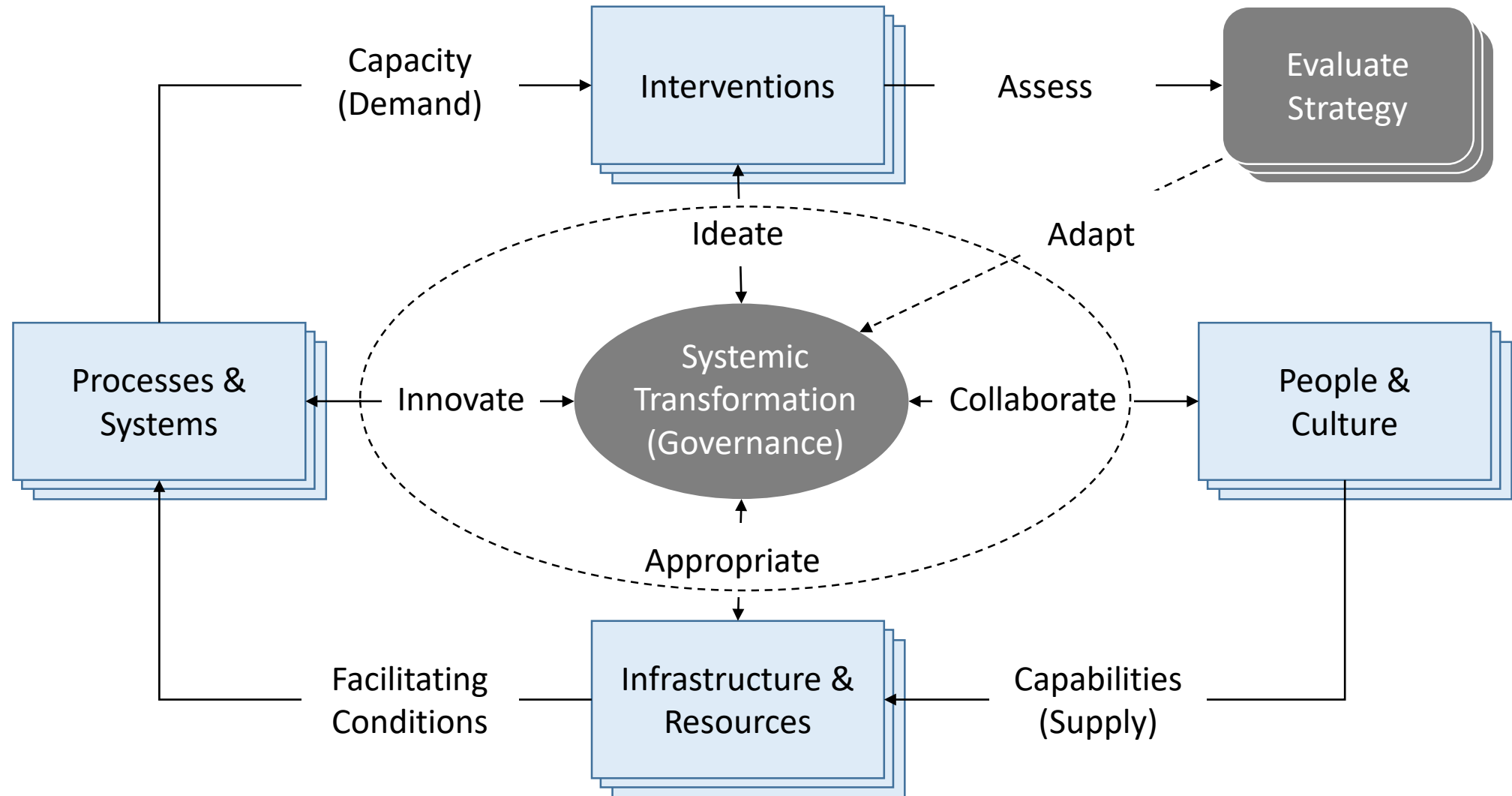
# Challenge 4: Becoming transformation ready



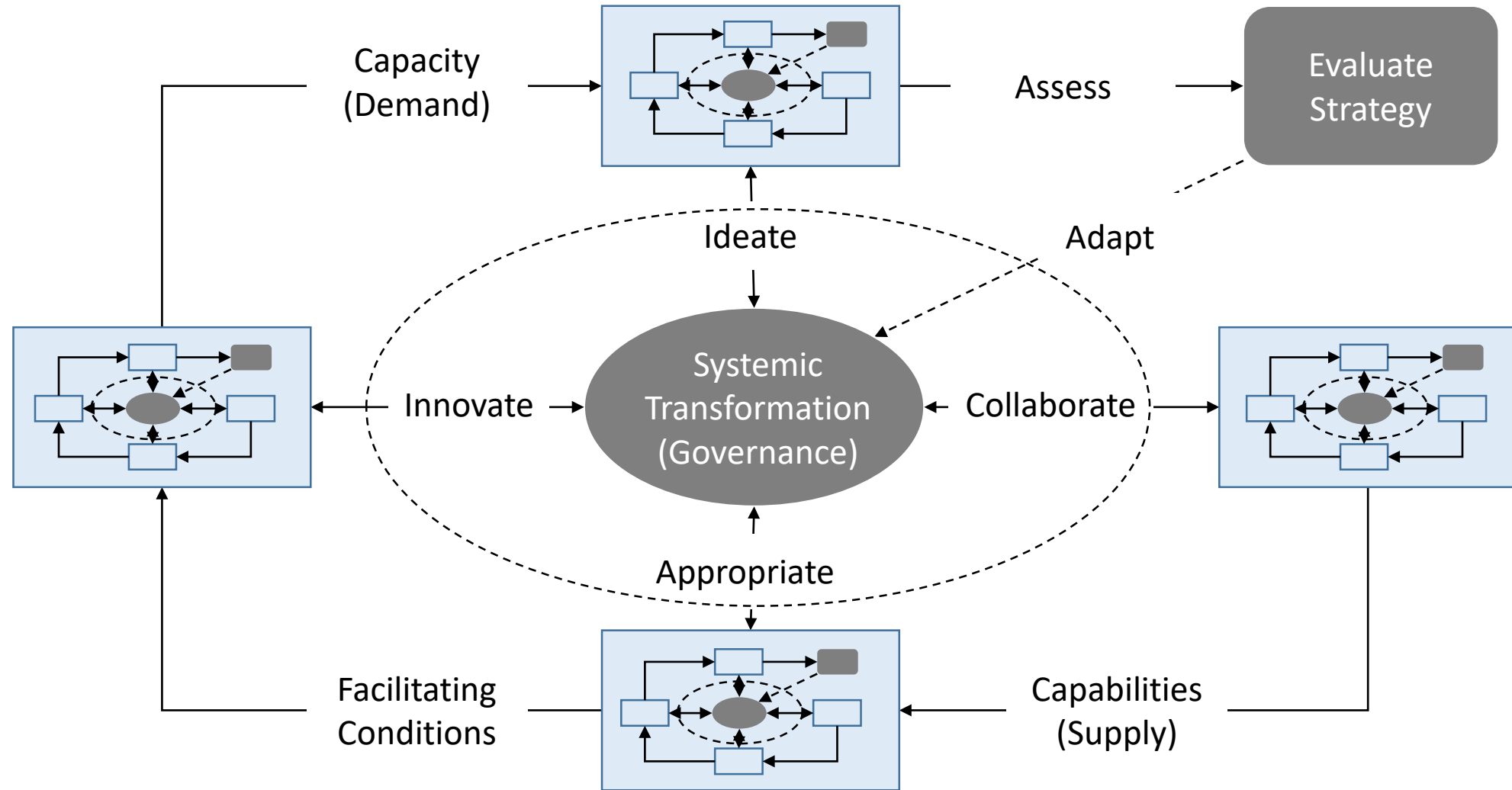
# Challenge 5: Transformation as an open-system (firm)



# Challenge 5: Transformation as an open-system (value chain)



# Challenge 5: Transformation as an open-system (nested-network)







THANK YOU

Transformation and Complex Change Program  
Next intake is in July 2020