Innovation Labs
Introduction + Transition

Laurie Johnson, LJC Research
Natalie Zappella, Enterprise
Urban Development Patterns can create correlations of physical vulnerability, with both direct and indirect social and economic consequences.
Areas of spatially concentrated building damage experience more extended and complicated recovery trajectories

(Peacock et al. 2014; Olshansky, Johnson, and Topping 2006)

- LA with >$300 mn CDBG-DR funding created earthquake loan repair program for mostly wood-frame apartments (age 1950-1975) with “soft story” failures
- By January 1996, >65% of Ghost Town units had loans and repairs underway
- By January 1999, nearly all units repaired and loan payments began
HayWired Scenario for San Francisco Bay Area:

Census tracts with concentrations of building damage, infrastructure damage and potential population displacement (publication in progress)

Damage due to ground shaking, landslides and liquefaction

With damage due to post-earthquake fires added
Realizing the Resilience Benefit

“Resilience is formed through the interdependencies that evolve from established societal patterns and the work of building resilience both pre- and post-disaster.”

(Multinational Resilience Work Group, 2014)

Seismic retrofit measures (especially for low-rise wood-frame structures) have been demonstrated to be cost-effective, with higher quality measures estimated to save thousands of dollars in potential losses per unit (Porter, Scawthorn, and Beck 2006).

Current seismic retrofit programs are largely voluntary, undertaken by individual building owners. Some retrofits are incomplete or not based on uniform, best-practice building codes (Maffei 2017).

The resilience benefits – both direct and indirect – can rarely be realized on a neighborhood- or community-scale, especially in denser, urban neighborhoods with concentrations of vulnerable structures.

(Multinational Resilience Work Group, 2014)
Building Resilience creates two aspects of benefits:

- It enables individuals, communities, and organizations to better withstand disruptions more effectively,
- and it enables them to improve their current systems and situations.

But it also enables them to build new relationships...and reach out for new opportunities, ones that may never have been imagined before.

This is the resilience dividend.

Dr. Rodin’s book on Resilience Benefits
Maslow’s Hierarchy of Needs: 5-Stage Model

- Biological and Physiological Needs
- Safety Needs
- Belongingness and Love Needs
- Esteem Needs
- Self-actualization
“Holistic” View of Community Resilience

People, Livelihoods

Governance and Community Institutions

Economy, Networks and Supply Chains

Structures, Infrastructure, and Built Environment

Environmental, Ecology, and Physical Environment

(Source: Laurie Johnson 2011)
# INNOVATION LABS Configurations

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<th>LMF</th>
<th>HARDWARE</th>
<th>CLIMATE BUILDING RESILIENCE</th>
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REPORT OUT + DISCUSSION

INNOVATION LABS