



CITIES, AND DEALING WITH **COMPLEX ADAPTIVE CHALLENGES**

THE CHALLENGES OF BELGRADE
AND OTHER 21ST-CENTURY CITIES

A Smart.City_Lab Workshop
Barcelona Smart City Expo World Congress
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SMARTCITY
EXPO WORLD CONGRESS


Fira Barcelona

 **WORLD BANK GROUP**



This document was produced by Architects Of Group Genius and it is based on the content captured by the facilitation team during the workshop. It is not a complete transcript and does not claim to be precise: we hope it captures with an acceptable level of approximation the main concepts and ideas that emerged and were discussed by the participants.

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THE SMART CITY EXPO WORLD CONGRESS AND THE WORLD BANK



“We want to make cities better places to live, work, play. This is why the theme of this 8th edition of the World Congress is “Cities To Live In.” It is the biggest we have ever organized with 840 exhibitors, and representatives from more than 700 cities. We became a Hub of urban knowledge and technological progress. And we know that our evolution will continue: the Smart.City_Lab is a symbol of this evolution.”

Ugo Valenti

Smart City Expo World Congress
Director

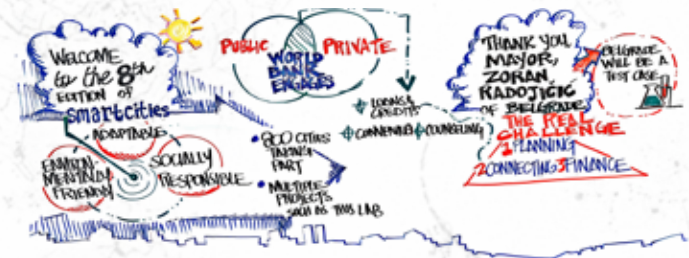


“We usually work with cities using a wide range of instruments, from planning, to connecting, to financing. We want to offer cities truly integrated solutions, solutions that deal with their real challenges and that can also attract investments from the private sector.

This Lab today is an experiment: we want to bring together an ecosystem of practitioners and thinkers, and invite them to help us find possible ways to tackle the challenges Belgrade is facing.”

Sameh Wahba

The World Bank
Social, Urban, Rural and Resilience Global
Practice, Director



THE SMART.CITY_LAB: CITY CHALLENGES WORKSHOP

The purpose of the City Challenges Workshop is to support city leaders to tackle the new challenges and uncertainties that disruptive technologies are bringing to cities around the world.

Through the Smart.City_Lab, Smart City Expo World Congress and the World Bank are partnering to provide a space where city leaders can meet global experts to share experiences on, obtain inspiration for, and co-create new approaches to the real challenges they are facing.



“Cities are becoming smarter as new technologies are allowing us to reach an unprecedented level of sophistication in many different domains. But we, as human beings, are not getting smarter at the same speed. What we are facing today, in our everyday life, is a new kind of challenges that require not only technical solutions, but a totally new understanding of the world we live in. This is why we are here today: to share experiences, exchange perspectives, learn something new – so that we can do something new.”

Maurizio Travaglini

Smart.City_Lab Facilitator,
CEO and Founder, Architects of Group Genius

THE CHALLENGES AHEAD OF BELGRADE

OUR PURPOSE

“My team and I are trying to create a new vision for Belgrade – a vision that deals with these challenges in a new way. And this is why we are here today: we want to discuss the experiences of others and listen to their suggestions, so that our vision can evolve, and become smarter! Before this workshop we have worked at identifying the problems of the city by consulting with our citizens and learning about their views. We know that we need to address many different issues regarding urban challenges and city development if we want to really make Belgrade a better place to live - a smarter one.”

Zoran Radojičić
Mayor of Belgrade



BELGRADE'S AREAS OF FOCUS

“M” for Mobility – Developing alternative transit systems to reduce traffic congestion

- Improve public transportation and create dedicated lanes
- Develop new initiatives and subsidy programs: “Park & Cycle”
- Focus on land use planning
- Build consensus across different parts of society

“E” for Eco-Friendly Environment – Making the city a healthy and livable one

- Reduce emissions
- Respect the carbon emission targets
- Break old habits and behaviors: foster more sustainable practices as cycling, public and electric transport
- Create more pedestrian zones

“T” for Trust & Transparency – Foster a clear and inclusive relationship with citizens

- Identify and collect data on traffic and transport in a transparent way
- Create an open platform to share the city’s new initiatives and projects to leverage communication and build trust.



Dušan Rafailović
Secretary of Transport



Darko Glavaš
Acting Secretary of the Secretariat for Defense,
Emergency Situations, Communications and
Coordination of Public Relations with citizens



SNAPSHOTS FROM OTHER WORLD CITIES

MILAN

“Milan has recently entered the 10 Smart Cities list on mobility. We have a ‘Low Emission Area’ in the city center, and from next February the whole city will be a low-emission zone. It’s a way to push people to avoid using cars. And it is working.

But at the same time the population is increasing: 30.000 people come to live in Milan every year. Even if we are investing heavily in new mobility solutions (public transport + 20%; 16.000 shared bikes, six car sharing operators), the number of cars is increasing every year. Moreover, if there isn’t a good connection with the regional government who is supposed to improve trains and metro and other light mobility services – it becomes more and more difficult to deal with traffic issues.”

MOSCOW

“Six years ago we had the worst traffic situation on the planet. We intervened in different areas: the administration implemented ‘big data’ to analyze people’s movements; we reorganized the bus system; we studied and moved the bus stops; we analyzed how many buses were running and how many were needed; we created separate routes for busses and taxis, and introduced a traffic control centre where dozens of people are monitoring the situation in real time.

Through all these efforts the situation moved from ‘chaotic and desperate’ to ‘complex and manageable.’”



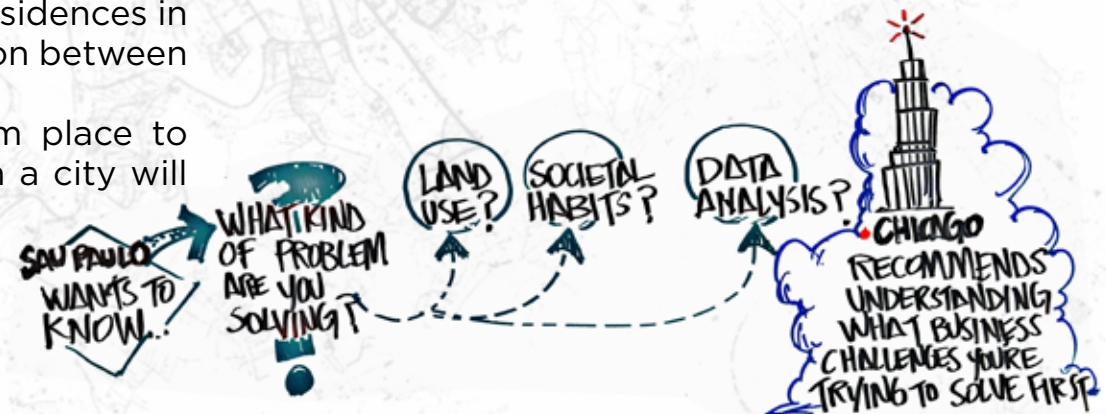
CHICAGO

“We are half-way through the implementation of a traffic management system. What we have learned: you need to know the specific problem you are trying to solve when you are dealing with traffic congestion. Understanding what kind of issue is behind the problem is of crucial importance. For us in Chicago, traffic represented a problem of inequality: it takes some people up to 2 hours to travel to work. This makes life difficult, and family life almost impossible. So what we learned from the implementation of the system is: if you don’t know the business or societal problem you’re trying to solve, the technology won’t fix it.”

SÃO PAULO

“I worked a lot with Brazilian cities, and in particular with the mayor of São Paulo where the challenge was the connecting of two different parts of city: the eastern part with its concentration of residences, and the western part where people work. The question was: ‘what should we do in such a situation? Do we create jobs where people are living or do we bring residences in the business district? Or do we improve transportation between the two zones?’

What we learned: solutions must be different from place to place; you can’t trust that a solution that worked in a city will help the situation in another city.”



THE NATURE OF CITY CHALLENGES IN THE 21ST CENTURY

When dealing with complex, entangled, adaptive challenges, a framework that invites us to observe reality through the lenses of “ambiguity” and “conflict” can be useful.

In this framework, I see three different combinations of ambiguity and conflict (see diagram):

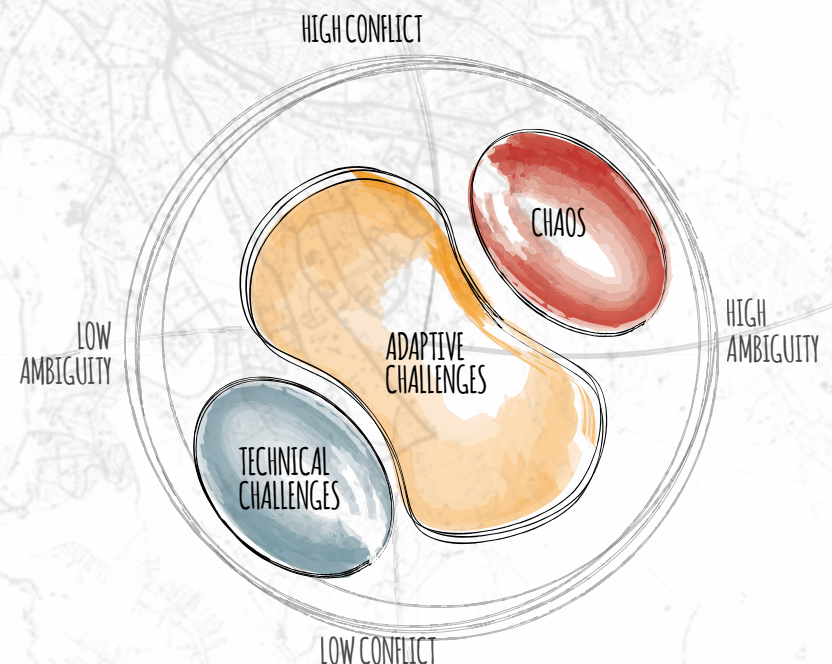
A) “Chaos:” where there is a high level of ambiguity and a high level of conflict. Nobody knows, nobody is in agreement – there’s a lot of anxiety and a lot of arguing... until someone comes up with a completely different interpretation of reality.

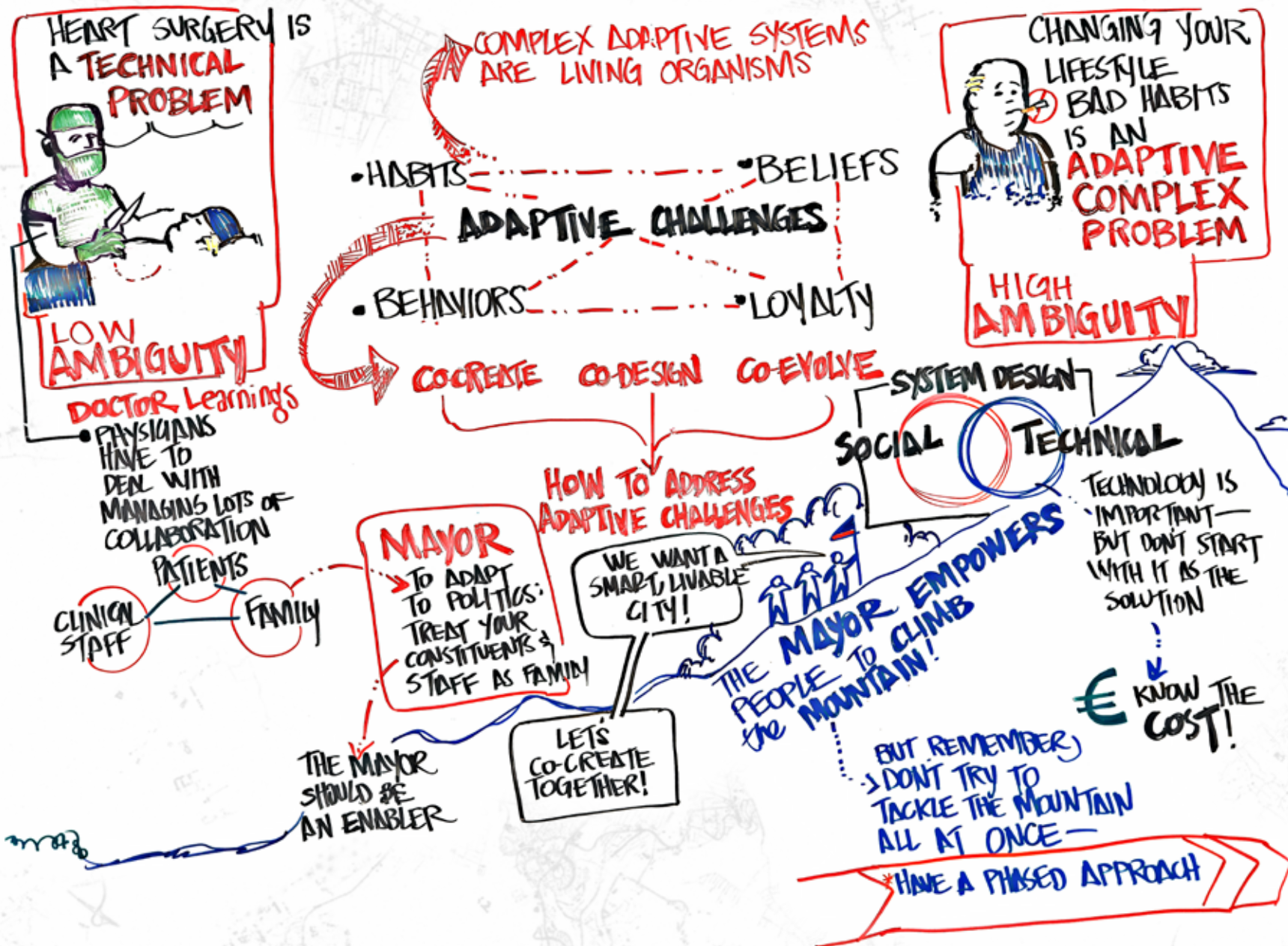
B) The “Technical Challenges:” a highly predictable situation where there is limited conflict and very little ambiguity. Technical problems are not necessarily easy to address — but they can be resolved by “good management,” using existing solutions, proven know-how, tools and practices.

C) The “Adaptive Challenges:” where issues are entangled and we must deal with some reasonable ambiguity and with an acceptable amount of conflict. In this context, people have different ideas and are organized in different groups/factions regarding the way to solve the problem.

Some scholars of leadership and management believe that the majority of failures in leadership come from one simple mistake: approaching an adaptive challenge as a technical one.

Technology can create the perception (illusion?) that adaptive challenges can be managed as technical ones. This simplification is dangerous: complex, adaptive challenges are more likely to be addressed constructively if leaders accept the need to engage others in a process of experimentation.





SNAPSHOTS FROM THE CONVERSATION

SMARTER CITIZENS
FOR SMARTER CITIES



BUILDING COMMUNITIES
THROUGH CIVIC ENGAGEMENT



UPGRADING THE CITY'S OPERATING
SYSTEM: REGULATION, POLICIES AND
DECISION-MAKING PROCESS



LEADING AND BUILDING
SMARTER CITIES

SMARTER CITIZENS FOR SMARTER CITIES

Change the conversation: from
“Smart Cities” to “Smart Citizens”
and “Smart Societies”

- Build a bridge between local government,
technological tools and citizens

- Shift the dialogue from ‘Artificial Intelligence’
to ‘Intelligence Augmentation’: provide people
tools and data they can use to make
better decisions in a better way

- Use technology as a means to build
up new capabilities and possibilities,
not as an end in itself



Create a different kind of relationship: help
citizens to interact with each other and with
city planners and authorities

- Foster a culture of eco-friendly and sustainable
choices: Reduce-Reuse-Recycle

- Promote new and more
sustainable lifestyles

BUILDING COMMUNITIES THROUGH CIVIC ENGAGEMENT

Engage citizens in the changes the city is facing:
provide an open platform to share information with
citizens about projects and initiatives

- Promote collaboration through active participation

- Build a culture of transparency

- Show the stakeholders the benefits
of any initiative/project

- Use storytelling to build up a narrative for politicians,
administration and citizens

- Enlarge the ecosystem by leveraging
every part of society



UPGRADING THE CITY'S OPERATING SYSTEM: REGULATION, POLICIES AND DECISION MAKING PROCESSES



Adopt a transparent strategy based on clear, distributed knowledge, and evidence-based solutions

- Focus on integration rather than fragmentation
- Experiment possible solutions and scale them up
- “Data is the new gold:” be transparent and open on the identification, collection, and access of data

Mix a short-term vision of data collection with a long-term vision of “building new capabilities”

- Embrace the “3 Ts” approach:
Trust - Transparency - True Options

- Move away from sexy tech solutions towards ecosystem/network-based approaches

- Create a centralized data management system

- “Test small:” develop and implement pilot projects



LEADING AND BUILDING SMARTER CITIES

Understand the challenge:
focus on a better understanding
of the problem

•
Adopt a phased approach:
don't try to tackle the mountain
all at once

•
Connect city departments and
bring communities together
to share their experiences
and perspectives



Create the space
to explore new solutions

•
Engage citizens and
stakeholders in a process of
experimentation and learning

•
Orchestrate the conflicts:
keep them alive and transparent,
make sure everybody understands
all the different factions' views
and perspectives



CONCLUSIONS

“To build a smarter city, we need to become smarter habitants. We have to help people reach a deeper awareness of the problems we are facing and of the possible solutions we can create together.

Step by step, including all parts of society.

We came here to talk about transport and traffic congestion, but the conclusions we bring home are richer than I was expecting. This proves that by working together and sharing experiences, we always reveal something new.”

Zoran Radojičić
Mayor of Belgrade

“My hope is that this gathering has created interesting connections between people and cities - not only for Belgrade, but for all of us. Thank you for participating with your ideas, innovations, time, and dedication.”

Sameh Wahba
The World Bank
Social, Urban, Rural and Resilience Global Practice Director





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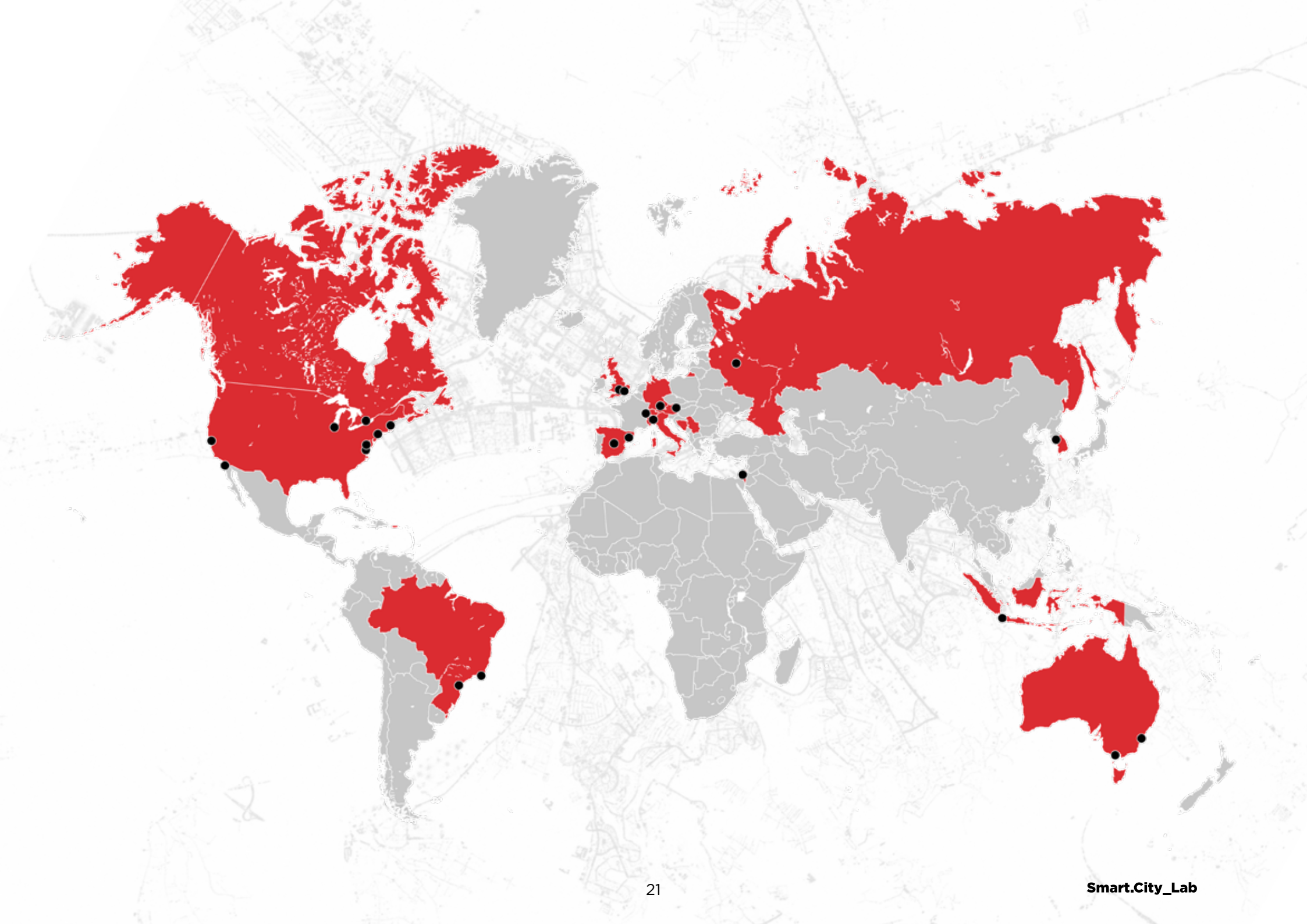
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ADDITIONAL RESOURCES: AUTHORS, BOOKS AND ARTICLES

ADAPTIVE VERSUS TECHNICAL CHANGE: WHOSE PROBLEM IS IT?

“The importance—and difficulty—of distinguishing between adaptive and technical change can be illustrated with an analogy. When your car has problems, you go to a mechanic. Most of the time, the mechanic can fix the car. But if your car troubles stem from the way a family member drives, the problems are likely to recur. Treating the problems as purely technical ones—taking the car to the mechanic time and again to get it back on the road—masks the real issues. Maybe you need to get your mother to stop drinking and driving, get your grandfather to give up his driver’s license, or get your teenager to be more cautious. Whatever the underlying problems, the mechanic can’t solve them.

Instead, changes in the family need to occur, and that won’t be easy. People will resist the moves, even denying that such problems exist. That’s because even those not directly affected by an adaptive change typically experience discomfort when someone upsets a group’s or an organization’s equilibrium.

Such resistance to adaptive change certainly happens in business. Indeed, it’s the classic error: companies treat adaptive challenges as if they were technical problems. For example, executives attempt to improve the bottom line by cutting costs across the board. Not only does this avoid the need to make tough choices about which areas should be trimmed, it also masks the fact that the company’s real challenge lies in redesigning its strategy.

Treating adaptive challenges as technical ones permits executives to do what they have excelled at throughout their careers: solve other people’s problems. And it allows others in the organization to enjoy the primordial peace of mind that comes from knowing that their commanding officer has a plan to maintain order and stability. After all, the executive doesn’t have to instigate—and the people don’t have to undergo—uncomfortable change. Most people would agree that, despite the selective pain of a cost-cutting exercise, it is less traumatic than reinventing a company.”

Ronald Heifetz and Marty Linsky, “A Survival Guide for Leaders,” Harvard Business Review, June 2002

THE STORY OF US

“For the last few decades, the story of AI has been one of a rising hero — or is it of a rising villain? In 1997, an AI beat Garry Kasparov at chess, and in 2011 and 2016, AIs beat the world’s top humans at Jeopardy! and Go. And now, many fear that AI will take over our jobs, or even take over humanity itself. Meanwhile, the story of IA has been one of a tragic fall. Starting out strong with Doug Engelbart’s *Mother of All Demos*, the idea of IA has slowly been forgotten, as technology shifted from tools for creation and more towards tools for consumption. Someone stole the wheels off the bicycle for our mind.

But now, these two story threads may be starting to wrap together, forming a new braid in history: AIA — Artificial Intelligence Augmentation. IA can give AI the

human partnership it needs in order to remain aligned with our deepest goals and values. And in return, AI can give IA some new replacement wheels for the bicycle of our mind.

I’d like to tell you what the future holds. But if you tell someone something good is inevitable, it can cause self-defeating complacency — and if you tell someone something bad is inevitable, it can cause self-fulfilling despair.

Besides, answers are for AIs. As a human, you deserve questions.

For example: IA may be able to align AI’s goals with humans’ goals, but how can we align augmented humans’ goals with non-augmented humans’ goals? Are we just replacing a divide between humans and AIs with a divide between humans and humans 2.0? Forget getting humans and AIs to live in peace,



how do we even get humans and humans to live in peace? We know how to create tools to augment our intelligence, but can we create tools to augment our empathy? Our communities? Our sense of meaning and purpose?

I don't know. I don't know what the answers are.

However, humanity has had a long history of borrowing ideas from nature. In just the field of machine learning alone, artificial neural networks were inspired by biological neural networks, and genetic algorithms were inspired by the process of biological evolution itself. So, if there's just one idea you take away from this entire essay, let it be Mother Nature's most under-appreciated trick: symbiosis.

It's an Ancient Greek word that means: "living together." Symbiosis is when flowers feed the bees, and in return, bees pollinate the flowers. It's when you eat healthy food to nourish the trillions of microbes in your gut, and in return, those microbes break down your food for you. It's

when, 1.5 billion years ago, a cell swallowed a bacterium without digesting it, the bacterium decided it was really into that kind of thing, and in return, the bacterium — which we now call "mitochondria" — produces energy for its host.

Symbiosis shows us you can have fruitful collaborations even if you have different skills, or different goals, or are even different species. Symbiosis shows us that the world often isn't zero-sum — it doesn't have to be humans versus AI, or humans versus centaurs, or humans versus other humans. Symbiosis is two individuals succeeding together not despite, but because of, their differences. Symbiosis is the "+".

A new chapter in humanity's story is beginning, and we — living together — get to write what happens next."

Nicky Case,

"How To Become A Centaur,"
Journal of Design and Science,
January 08, 2018

A CALL FOR CITIZENSHIP

"Community transformation calls for citizenship that shifts the context from a place of fear and fault, law and oversight, corporation and 'systems', and preoccupation with leadership to one of gifts, generosity and abundance; social fabric and chosen accountability; and associational life and the engagement of citizens. These shifts occur as citizens face each other in conversations of ownership and possibility. To be more specific, leaders are held to three tasks: to shift the context within which people gather, name the debate through powerful questions, and listen rather advocate, defend, or provide answers."

Peter Block,

Community, 2008

THE AGE OF NETWORKS

“Many of the technical choices we’re about to make will be strikingly political. Who has access to what data? Where is the line between human choice and machine intelligence? Why is one computer architecture better than another? These decisions—and the people who make them—will determine power’s new aspects. Banal technical choices will reverberate through our future with the same influence that the Bill of Rights, the Magna Carta, the Analects of Confucius, and the Koran retain long after they were first written down. The real contests ahead will concern networks—but this means, in fact, a deeper conflict over values. Networks are like churches or schools or congresses; they reflect the aims and ethics of the people who build them. The price of meshing so many passionately held aims and sensibilities, hopes and hatreds, will be high. We can already see how wrong the idea of easy globalization, once promised to us, has become.



National identities, religions, biases—these aren't erased by connection. They are merely (and dangerously) linked. 'Modern societies,' the French philosopher Bruno Latour has written, 'cannot be described without recognizing them as having a fibrous, thread-like, wiry, stringy, ropy, capillary character that is never captured by the notions of levels, layers, territories, spheres, categories, structure, systems.' Familiar borders, like the ones dividing science and politics or military power and civilian safety, begin to erode when everything is linked. Computing machines and networks were once locked into usefully narrow silos, unconnected: An ATM. A heart monitor. A power grid. But now they overlap and inform one another."

Joshua Cooper Ramo,
The Seventh Sense, 2016

YOU'RE NOT STUCK IN TRAFFIC, YOU ARE TRAFFIC

"We can build software to eat the world, or software to feed it. And if we are going to feed it, it will require a different approach to design, one which optimizes for a different type of growth, and one that draws upon – and rewards – the humility of the designers who participate within it."

Kevin Slavin,
"Design As Participation,"
*Journal Of Design
and Science*, February 24, 2016



RESISTING REDUCTION

“Developing a sensibility and a culture of flourishing, and embracing a diverse array of measures of “success” depend less on the accumulation of power and resources and more on diversity and the richness of experience. This is the paradigm shift that we need. This will provide us with a wealth of technological and cultural patterns to draw from to create a highly adaptable society. This diversity also allows the elements of the system to feed each other without the exploitation and extraction ethos created by a monoculture with a single currency. It is likely that this new culture will spread as music, fashion, spirituality or other forms of art.”

Joichi Ito,

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