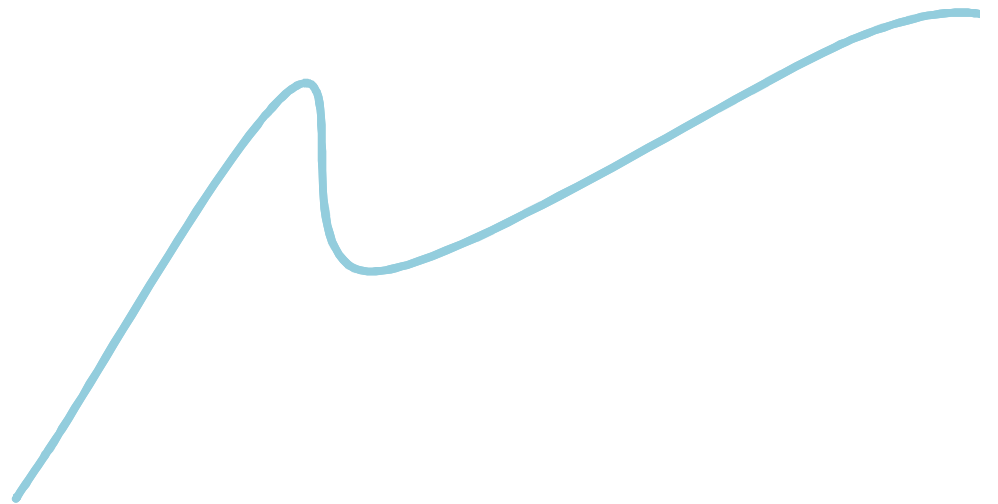# Service Systems and the emerging concept of smart (or viable)

features of design, management, enhancement, adaptation

Focusing on...

Service Systems

Within Service Science, with the term Service Systems we refer to a configuration of people, technologies, organizations and shared information, able to create and deliver value to providers, users and other interested entities, through service.

They are coherent with Service-Dominant logic and are based upon relational approaches to business (RBV) and marketing, fostering a many-to-many logics to business behaviour. Due to this participated process of value co-creation it well fits with the Viable System Approach (*vSa*) and with other network value creation models.

MAIN REFERENCES ABOUT THE THEME:
SPOHRER, J., ANDERSON, L., PASS, N., AGER, T. (2008)
SPOHRER, J. MAGLIO, P.P., BAILEY, J., GRUHL, D. (2007)
VARGO, S.L., LUSCH, R.F., WESSELS, G. (2008)

Service Systems

Today, *service systems* represent an emerging issue in economic research, rapidly comprising many specific topics and even innovation and quality, traditionally related to technologies and processes, now consequently declined, designed, observed.

Service Systems can be considered articulated models of service supply and fruition, in which multiple active actors synergically participate in the value co-creation process, which is characterized by resource-sharing and common finality.

MAIN REFERENCES ABOUT THE THEME:
ALTER, S. (2008)
SPOHRER, J., VARGO, S.L., MAGLIO, P.P, CASWELL, N. (2008)

Systems theories (ST) are strictly linked to complexity theories

1. Through ST we can investigate organization behaviour.
2. ST allow the analysis of links, nets, balances, processes. dynamics
3. With ST various standpoint can be chosen to underpinn resources, goals, needs/expectations.
4. ST support the interpretation of complex phenomena both from an holistic perspective and from a reductionistic view.

4

Luca Carrubbo – Brno 2013

Systems theories as methodological suggestions to the analysis of Service Exchanges

System studies and theories increase knowledge about multiple perspectives, linking components, connective functions and practical applications of complex phenomena (as service exchange).
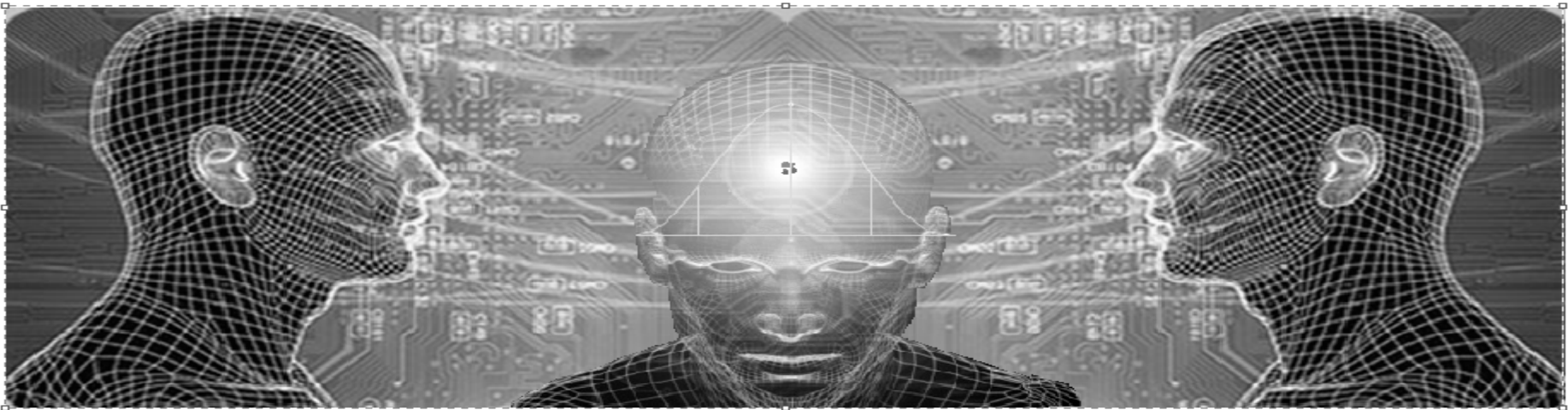

Systems are in nature, in society, in business, within socio-economic contexts. They are not only peculiar of individuals and their human mind. They may be identified also within organizations, districts

5

Luca Carrubbo – Brno 2013

From Systems Theories we ay observe:

- "a system as a complex of *interacting elements*" (Von Bertalaffy, 1956);
- "a system as an entity that is *adaptable* for the purpose of surviving in its changing environment" (Beer, 1975);
- "system elements are rationally connected" (Luhmann, 1990);
- concepts of many part compositions (Parsons, 1965), boundaries, connections and different relationship levels show certain signs of system relevance and allow an interpretation of its own capabilities as being critical and influential and its relations with correspondent supra-systems and sub-systems.
- "sub-systems focus on the analysis of relationships among its own internal components while supra-systems focus on the connections between the analysis unit and other influencing systemic entities in their context" (Golinelli, 2005);
- "a structure can be studied (what it is? How it is made?), a system should only be interpreted (how does it works? What logics does it follow?)" (Barile, 2008);
- "a system can be defined as an entity which is a *coherent* whole" (Ng, Maull, Yip, 2009).

6

Service Systems definitions
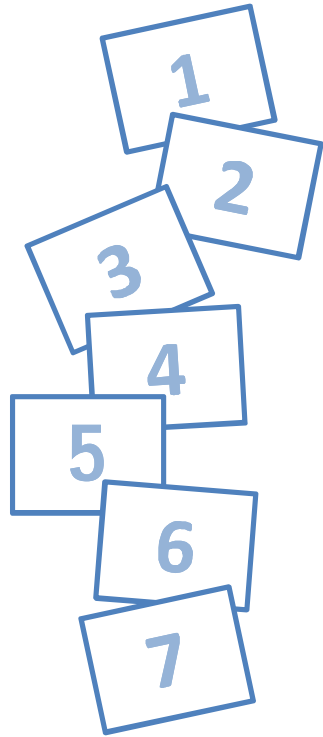
1 *value-co-creation configurations,*

2 *resources integrators,*

3 *knowledge-based,*

4 *capable of enabling connections and interaction,*

5 *with the aim of reaching desired outcomes,*

6 *simply, always, an operative application,*

7 *any number of elements, interconnections, attributes, and stakeholders interacting in a co-productive relationship.*

... a Service System is basically composed of heterogeneous entities, interacting with each other with a specific

1

Service Systems definitions

SSMED Foundations	Main Focus
Resources: Everything that has a name and is useful can be viewed as a resource	*Useful* instruments for activities
Entities: Some complex resource configurations can initiate actions, and these are called service system entities (or just entities, or sometimes just service systems)	Openness of evolving systems
Access rights: dealing with the social norms and legal regulations associated with resource access and usage.	Supra-Systems relevance
Value Co-creation Interactions: Also known as value-proposition-based interaction mechanisms	Joint process within Service Systems
Governance Interactions: Intuitively, governance mechanisms are a type of value-proposition between an authority service system entity and a population of governed service system entities	Common finality, internal and external equilibrium
Outcomes: When service system entities interact, value-co-creation is only one of the possible outcomes.	Value intended in an extended way
Stakeholders: The four primary types of stakeholders are customer, provider, authority, and competitor	Contextual influences and self-regulation
Measures: The four primary types of measures are quality, productivity, compliance, and sustainable innovation	Up to now only qualitative
Networks: Also known as service system networks, service systems entities interact with other service system entities (normatively) via value-propositions	Networked *embeddedness*
Ecology: Also known as service system ecology, the macro-scale interactions of the populations of different types of service system entities	Service Ecosystems

8

Service System definitions	Authors	Year
Service systems represent value co-creation configuration of people, technology, value propositions connecting internal and external service systems , and shared information (e.g., language, laws, measures, and methods), like an assemblage of unites entities by some form of regular interaction or interdependence.	Spohrer, Maglio, Bailey and Gruhl	2007
Service Systems can simply be a software application, or a business unit with an organization, from a project team, a business department, a global division; it can be a firm, institution, government agency, town, city or nation; it can also be a compostiion of numerous collaboratively connected service systems within and/or across organizations.	Qiu, Fang, Shen and Yu	2007
Service Systems act as resource integrators, understandable in terms of elements of a work system, within the organization and through the network enduring resource specialization, those operand and operant, such as knowledge, skills, know-how, relationship, competences, people, products, money, etc.	Spohrer, Anderson, Pass and Ager	2008
Every service systems is both a provider and client of service that is connected by value propositions in value chains, value networks, or value-creating systems.	Vargo, Maglio and Akaka	2008
A service system is any number of elements, inteconnections, attributes, and stakeholders interacting in a co-productive relationship that create value, in which principal interactions take place at the interface between the provider and the customer.	Spohrer, Vargo, Maglio and Caswell	2008
A service system primarily relates to customer-provider interactions as well as open system with it being capable of improving its own state and the one of another system though acquiring, sharing, or applying resources, with the aim of creating a basis for systematic service innovation.	Golinelli	2008
Service systems are a complex interplay betwwen form and customer that form an open system which needs to be designed using the techniques of viable systems and systems dynamics, in which both parties are focused on achieving outcomes.	Ng and Maull	2008
Service systems can be divided into "front stage" (about provider/customer interactions) and "back stage" (about operational efficiency) and service performance relies on both of them, putting people (customers and employees), rather than physical goods, in the centre of its organizational structure and operations. The smallest service system is a single person; the largest one is represented by the global economy. A service system essentially is a social-technical system, focusing on engineering and delivering services using all available means to realize respective values for both provider and customer.	Qiu	2009
Service systems can be represented as real networks, in which the same entities combine their streghts through direct and indircet connectivity, as they are oriented toward enduring competitiveness and daily intercations with other external interdependent service systems.	Polese	2009

Service System as Network: **The Service Value Network**

Luca Carrubbo – Brno 2013

10
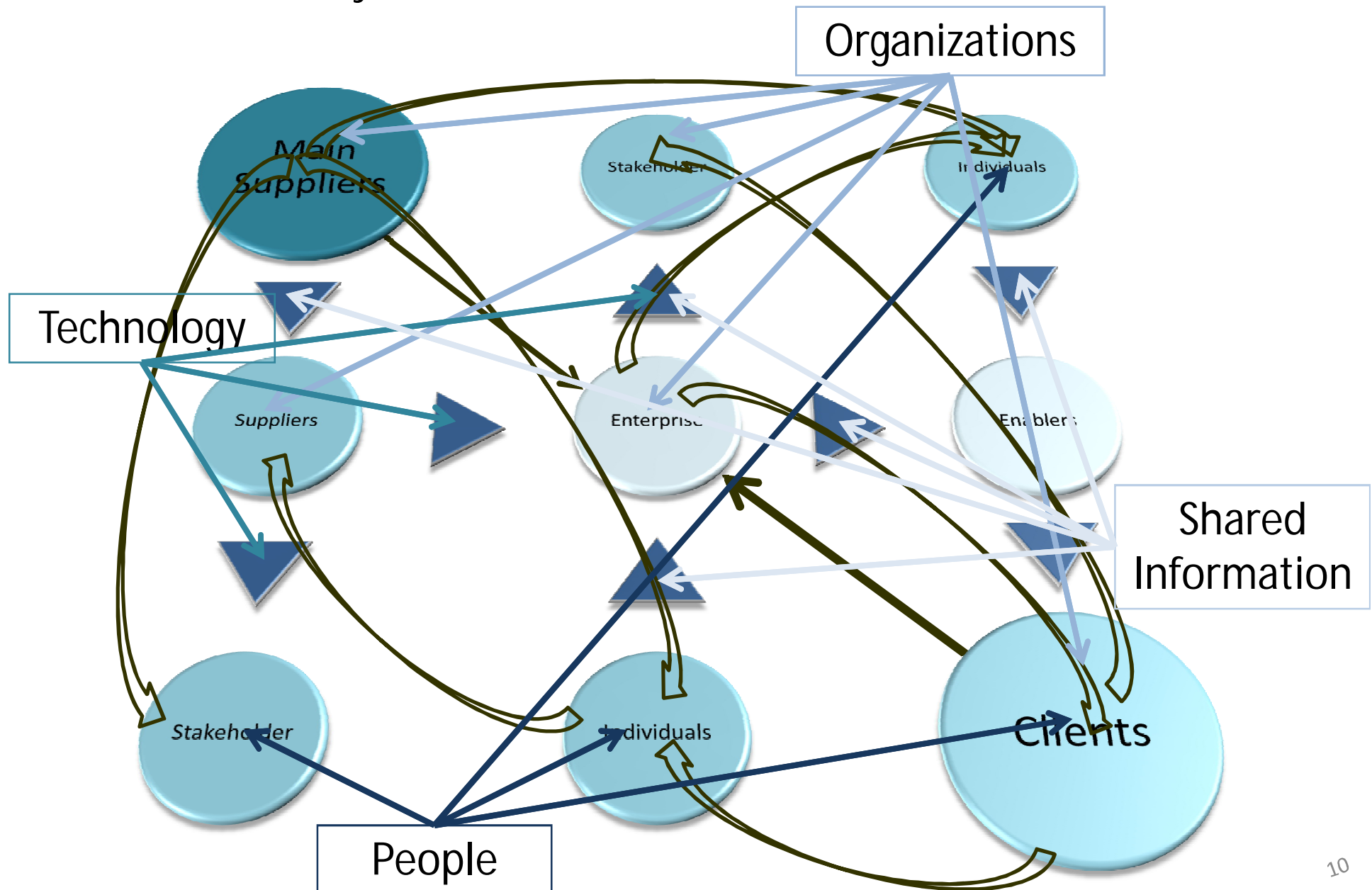
Complex Service Systems as the base of a Smarter Planet...
iterative, interactive, instrumented, interconnected, intelligent

S.M.A.R.T.: Specific, Measurable, Agreed, Realistic and Timely
(More measurement data, More networks, More learning and adaptation)

Complex Service Systems, as smarter systems, improve quality of life,
creating more opportunities for win-win interactions,
resulting in measurable resource access & value-cocreation for multiple stakeholders.

Smart traffic systems

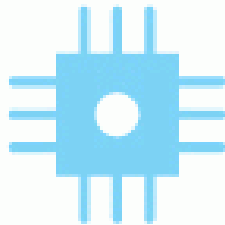Intelligent oil field
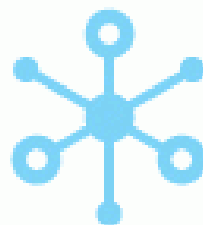
Smart food

Smart healthcare

Smart energy grids

Smart retail

Smart water management

Smart supply chains
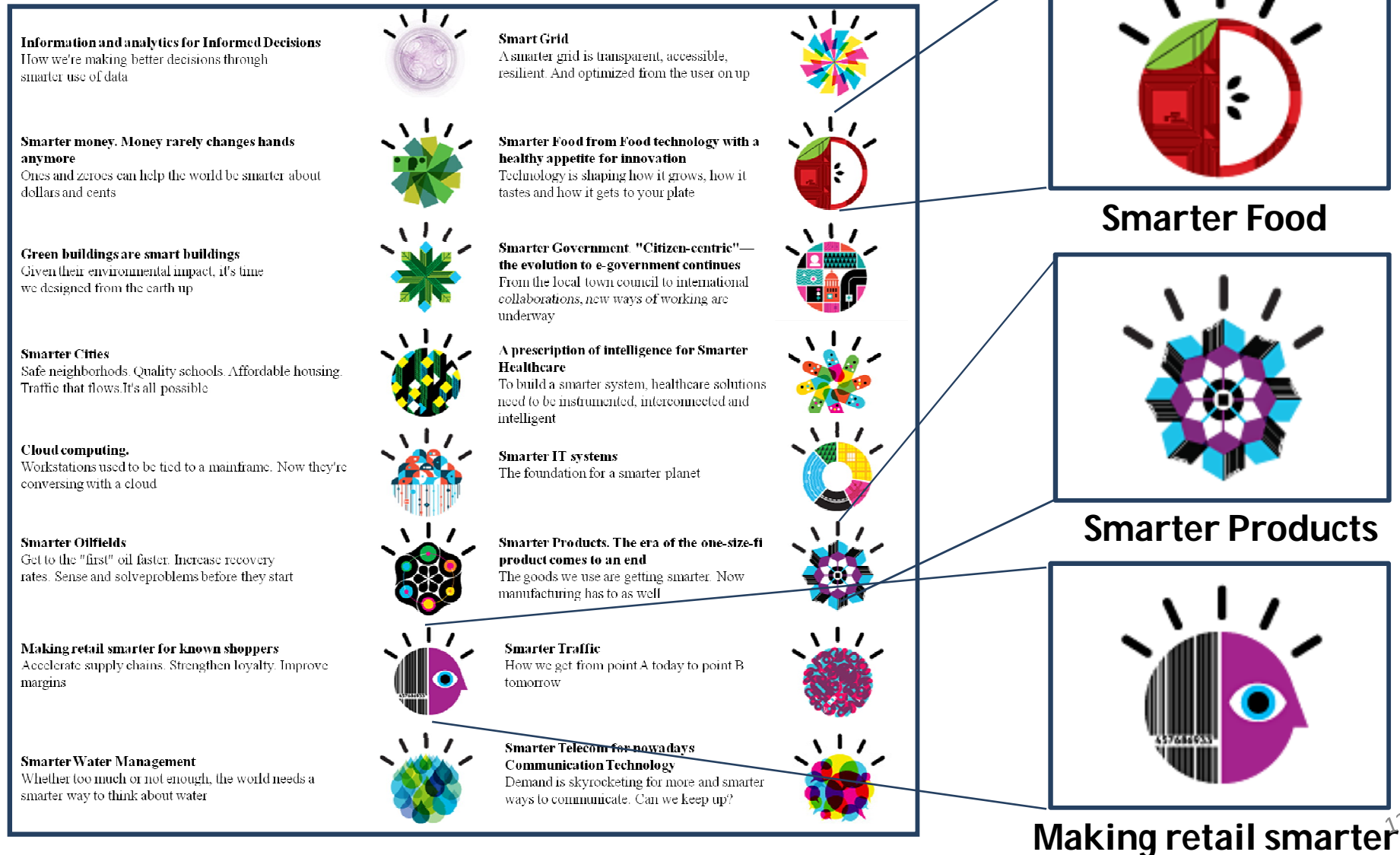
Smart countries

Smart weather

Smart regions

Smart cities

Source: www.ibm.com/think

11

Luca Carrubbo – Brno 2013

Smarter Planet...
Iterative, interactive, instrumented, interconnected, intelligent
(More measurement data, More networks, More learning and adaptation)

Information and analytics for Informed Decisions
How we're making better decisions through smarter use of data

Smarter money. Money rarely changes hands anymore
Ones and zeroes can help the world be smarter about dollars and cents

Green buildings are smart buildings
Given their environmental impact, it's time we designed from the earth up

Smarter Cities
Safe neighborhoods. Quality schools. Affordable housing. Traffic that flows. It's all possible

Cloud computing.
Workstations used to be tied to a mainframe. Now they're conversing with a cloud

Smarter Oilfields
Get to the "first" oil faster. Increase recovery rates. Sense and solve problems before they start

Making retail smarter for known shoppers
Accelerate supply chains. Strengthen loyalty. Improve margins

Smarter Water Management
Whether too much or not enough, the world needs a smarter way to think about water

Smart Grid
A smarter grid is transparent, accessible, resilient. And optimized from the user on up

Smarter Food from Food technology with a healthy appetite for innovation
Technology is shaping how it grows, how it tastes and how it gets to your plate

Smarter Government. "Citizen-centric"—the evolution to e-government continues
From the local town council to international collaborations, new ways of working are underway

A prescription of intelligence for Smarter Healthcare
To build a smarter system, healthcare solutions need to be instrumented, interconnected and intelligent

Smarter IT systems
The foundation for a smarter planet

Smarter Products. The era of the one-size-fit product comes to an end
The goods we use are getting smarter. Now manufacturing has to as well

Smarter Traffic
How we get from point A today to point B tomorrow

Smarter Telecom for nowadays Communication Technology
Demand is skyrocketing for more and smarter ways to communicate. Can we keep up?

Smarter Food

Smarter Products

Making retail smarter 12

Luca Carrubbo – Brno 2013

Implications
for Project Management

By focusing on the governance of systems and deepening issues related to autonomous elements within, we can highlight the central control, the dynamic equilibrium, and the structural variability management.
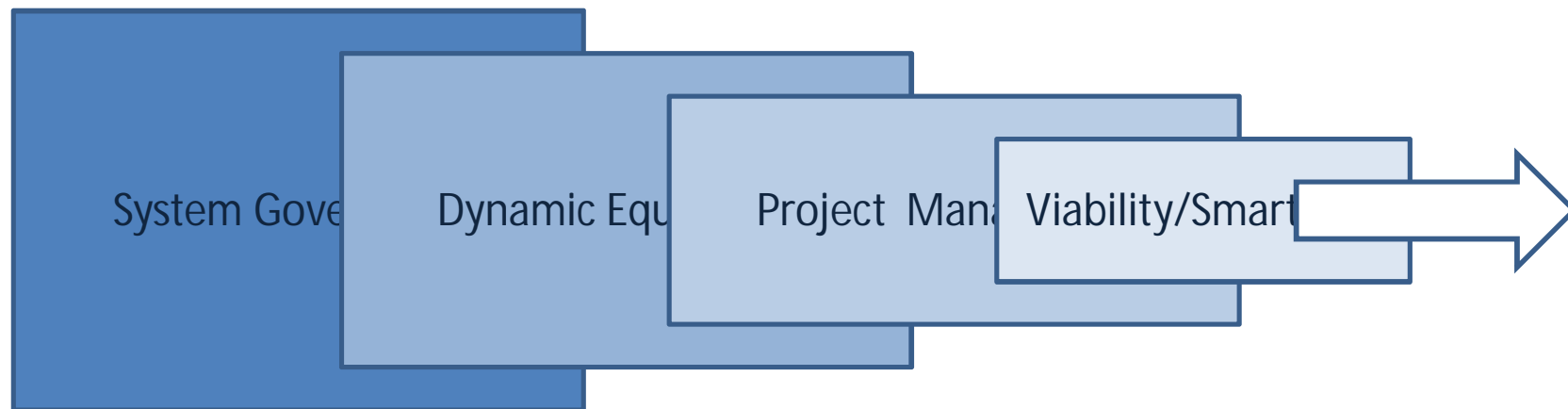
Project management favors sophisticated process control, and accurate monitoring ensuring more effective management of resources and a workload and responsibility more balanced between different actors involved in the value co-creation process. The planning in this sense assumes a particular importance.

Luca Carrubbo – Brno 2013