INSPIRE – What if...?

As Ribes & Finholt (2007) stated, designing an infrastructure is planning for the long term in order to provide "*a persistent, ubiquitous and reliable environment*". Undoubtedly trying to design future-proof information infrastructures for "*a changing place in an evolving world*" (Commission, 2017), is really a hard task. Star & Ruhleder (1996) asserted that "*trying to develop a large-scale information infrastructure in this climate is metaphorically like building the boat you're on while designing the navigation system and being in a highly competitive boat race with a constantly shifting finish line*."

A key component for assuring that an information infrastructure will stay relevant in the future, isn't predicting accurately the future; who can actually do it? But to include flexibility in infrastructure design in order to facilitate change, potentially making infrastructure more responsive to evolving conditions (Knobel, 2007). In other words, before discussing how an infrastructure should evolve, it is imperative to assure that it is capable of evolving. That is to design an infrastructure inscribed with learning and transforming capabilities so as to be able to adapt to the unknown future.

In fact there is neither a technical blueprint nor a single ideal solution that could guarantee long term evolution and sustainability. Lack of a single solution however could also be an opportunity for creativity and innovation as long as the designers of the infrastructure stay close to their creation and embrace the freedom to try different things. After all SDI could be regarded as a learning by doing process (Masser, 2009), quite similar to buildings, where the design process has only just begun when the building is completed (Brand, 1995).

de Man (2011) defines SDI development as praxis between dilemmas, meaning an ongoing, never-ending mutual alignment between actors and their competing and conflicting values. In this worldview there are no absolute-universal right or wrong choices, good or bad designs, superior or inferior implementations. It depends on the context, the goals, the strategies, the actors, the expected outcomes etc. of the SDI and these parameters are always changing due to its dynamic nature. Therefore SDI praxes should not be assessed in vitro based on technical excellence, efficiency, or experts' opinions alone, but primarily whether they enhance the long term sustainability of this multi-faced, dynamic and complex in nature infrastructure.

According to bibliography, and common sense, the long term sustainability and success of an infrastructure is mostly defined by its usage and its users. As Nedovic-Budić et al. (2008) stated "...*the 'use' which follows access, determines the success of an SDI and it is the user's perspective that matters the most ...*". "*After all beautiful but empty informational corridors are not infrastructure at all.*"(Ribes & Finholt, 2007).

So the users (not just some experts but every user) and their needs should be a key priority for a sustainable European Spatial Data Infrastructure. However this is easy to say, hard to do and even harder to master, especially for government organizations and their ingrained mentality around efficiency, completeness, accountability, order etc. that does not favor usage and simple users. Combined with

other major problems in Gov. IT e.g. strict regulations, long and complex procurement processes, lack of specialized personnel etc. could lead to long delays in projects (e.g. JRC's procured geoportal) , low usage or even unusable solutions (e.g. the well known 2013 HealthCare.gov problem in USA).

Some might propose that an information infrastructure should and could try to address different multiple challenges and priorities at once (experts, officials, scientists, simple users). Most of the times though these efforts have questionable results mainly due to complexity issues and priority conflicts. For example, an e-gov SDI would most probably prioritize standardization, formality, stability, control, security, quality, efficiency etc. but also could result to other side effects as "unintended consequences" like e.g. complexity, inflexibility, stagnation, sluggishness, user hostility etc. that ultimately lead to low usage.

There is also a general unfriendly/patronizing approach towards users in SDI's that is enhanced by (and promote) the pre-conception of passive users as "*relevant but not substantially influential and powerful participants that are most discussed but least involved*" (Nedovic-Budić et al., 2008). Consequently, questionable assumptions about the users prevail like for example:
- if you built it they will come,
- simple users will value the efficiency, completeness, scope, capabilities etc. of the infrastructure,
- simplicity of the "last mile" alone (simple applications, software, consumer hardware that use the infrastructure), can address users needs and reach users etc.

In reality no one knows what the users want. Sometimes not even the users themselves. (Experience something though, might help). This is why different approaches, techniques and strategies come into place to help the development process in the tech world. User center design, iterative processes, agile software development, micro services, simplicity first quality later, worse is better, flexibility over fidelity, convenience over features etc. are some of these concepts. And in order to address users' needs, every part of the chain up to the user, infrastructure included, must be capable to use and test these concepts, adopt, change and co-evolve.

Addressing simple users' "multiple, unexpressed, future" needs by an infrastructure, demands prioritizing its extensive usage, measure it and adopt, even if it means that it has to devaluate other priorities (e.g. formality, control, completeness etc.). This might "*require a change in focus in the development of SDIs, away from government directives to listening to the needs of the wider community and non-government organizations to a far greater extent*." (Williamson et al., 2003).

The tension between simple users and government/experts/scientists etc. consists a core dilemma of an information infrastructure that needs praxis. Someone can either go after user's needs or governments'/experts'/scientists' needs. Not both. And these two (three, four) needs are not the same.

A new design plan for European Spatial Data Infrastructure, shouldn't address only "new data sources and new multiple ICT opportunities". After all, things change rapidly and every current hyped technology might be in trouble in a few years from now. Instead, someone should try to inscribe, user centered and startup mentality in the design, starting from something simple and useful that works now, while being capable to observe, measure, adopt and start over. He'd better be ready to acknowledge that he might stumble (is he allowed to do so, with tax payers' money?) and sometimes win, sometimes lose (or both); in this long term process with ups and downs that may take years before it will be fully operational (Masser, 2005).

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