

## V. I-UNLOC: A LIST OF CHALLENGES FOR PUBLIC SECTOR INNOVATION

### A. INTRODUCTORY NOTES

This chapter presents I-unLoC, a proposed list of challenges for unlocking the potential for Public Sector Innovation in Arab Region countries. The challenges included in this list have been identified in the context of the study from the literature and the examples of public sector innovation that have been researched. At the same time, this list includes challenges identified from presentations as well as discussions that have taken place during the *Workshop on Fostering Innovation in the Public Sectors of Arab Countries*, organized by UN ESCWA in Cairo, Egypt, on October 30-31, 2017<sup>98</sup>.

The working definition of the concept of *challenge* undertaken for developing the I-unLoC list of challenges and used in the following is a rather simple one, based on the current/established use and meaning of this term. Indeed, in established dictionary sources like Oxford Living Dictionaries<sup>99</sup>, Cambridge Dictionary<sup>100</sup> and Merriam-Webster<sup>101</sup>, a challenge is defined (among other meanings) as something that

- a call to someone to participate in a competitive situation or fight to decide who is superior in terms of ability or strength; a task or situation that tests someone's abilities;
- (the situation of being faced with) something that needs great mental or physical effort to be done successfully and therefore tests a person's ability; and
- a stimulating task or problem.

In this respect, a challenge to public sector innovation herein is defined as

- (a) an objective, meaningfully pertinent to public sector innovation, that has three different characteristics at the same time;
- (b) it is important, because of its pertinence to public sector innovation and the potential that it brings along for fostering the latter, once achieved;
- (c) it is difficult, though clearly not impossible, to achieve, due to the material/immaterial conditions, resource consumptions and/or physical effort that it demands; and
- (d) it is stimulating, because it also demands a mental effort, forward/disruptive thinking, as well as ingenuity and persistence to achieve.

In this line of thought, 27 challenges pertinent to public sector innovation efforts in Arab Region countries are listed below. These challenges are organized in three thematic groupings, structured under the following core themes:

- Core theme A: challenges related to the 5W's of innovation
- Core theme B: challenges related to the 1H of innovation
- Core theme C: challenges related to bringing in more stakeholders.

Identifying any of these core themes or challenges as more important than others is an exercise that can best be based on the fundamental or more higher-level role that they may play in the quest to innovate in public sectors. Still, and even more importantly, such an exercise can best be based (and operationalized) on deliberation and consensus building with multiple and diverse stakeholders, rather than on the sole opinion of one or a few experts. In this respect, the meta-challenge of identifying a relative importance of the challenge core themes and individual challenges below, which may also imply an order in which they might be faced, is better left as a final recommendation of the study for further work, rather than as a closed study outcome already available at this point.

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<sup>98</sup> <https://www.unescwa.org/events/fostering-public-sector-innovation-arab-region>

<sup>99</sup> Online searchable from <https://en.oxforddictionaries.com/>.

<sup>100</sup> Online searchable from <https://dictionary.cambridge.org/>.

<sup>101</sup> Online searchable from <https://www.merriam-webster.com/>.

As a final point, it should be noted that the challenges discussed below for public sector innovation efforts are closely related to factors that are usually discussed as enablers for, and as barriers to, such efforts. Indeed, considering as an *enabler* a factor that fulfils a necessary precondition for, and/or facilitates realization of, an effort, and as a *barrier* a factor that works in the opposite way, for all the challenges that follow success to meet them can be considered as an enabler, and failure to meet them can be considered as a barrier, for public sector innovation efforts.

## B. CORE THEME A. CHALLENGES RELATED TO THE 5W'S OF INNOVATION

The challenges grouped under this core theme are challenges related to the basic 5Ws of discussing public sector innovation as a process, namely on the thinking and decisions of public sector stakeholders as to *where*, *when*, *by whom*, *with whom*, *why* (in other words, *for whom*) to innovate, as well as to *what* innovation means and *what* important innovation is.

Perhaps the most critical aspect of these challenges, which although important often goes unnoticed, or noticed but unfocused on, has to do with the fact that the end objective here is not to have some expert- or literature-based answers. The latter can best serve as a starting point for a discussion and thinking process for which, the only way to arrive at answers more inclusive and more mature to uptake and operationalize in everyday practice, is to involve multiple and diverse stakeholders of real public sector innovation processes, and creatively synthesize their viewpoints into the final outcomes.

### 1. Challenge A1. Establishing a system of empirical Where-to-Innovate signals

It would be important, to foster innovation in public sectors, to have in place a system of empirical indicators that would act as whistle-blowers for (a) the need, (b) the ability and/or (c) the advisability to innovate in specific contexts, signalling that there are, in the current state of operations, things that can be done better.

One such set of signals has to do with the presence of papers, chairs, files and signatures all around public sector premises and processes. Figures 1(a) to 1(c) below are coming from the period prior and parallel to introduction of the TAXIS information system and TAXISnet services in the Greek Ministry of Economy and Finance (cf. the corresponding chapter of the study for a discussion of TAXISnet as an example of collaborative innovation).

**Figure 7. Real examples from (a) income tax forms, (b) legacy taxation data files and (c) a decision on changing the format of VAT numbers from the Greek Ministry of Economy and Finance, during the late 1990s period.**



Source: Courtesy Prof. Panagiotis Georgiadis, former Secretary General for Information Systems, Greek Ministry of Economy and Finance.

In the typical case, papers, chairs, files and signatures exist within public sectors in large amounts, and they are everywhere, in Government, municipalities and public entities alike. A perception that there are too many of them can be an empirical signal that innovation is needed, to

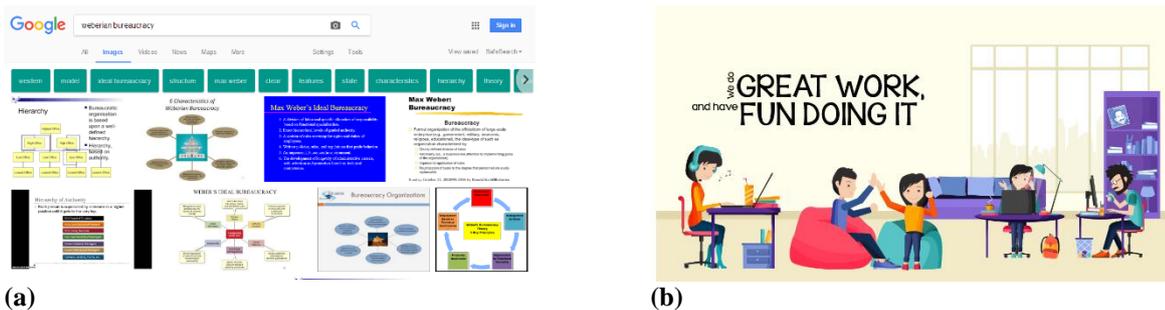
- better organize them;
- handle them more efficiently;
- make them disappear from citizens; and/or

- make them disappear at all, by simplifying processes and rules.

These can all be objectives of innovation and, although they may seem humble as innovation objectives, they may still prove to make a difference to be proud of. It should be noted, on top of that, that as far as chairs, used in this discussion to signify personnel, are concerned, making these disappear does not imply that an objective of innovation would be to cut down public sector posts and jobs. The objectives to be considered, in this case, have to do with (a) policies for workplace virtualization, as well as (b) improvements for better utilizing the capacity of public sector personnel, using innovation to free up human resources from routine processes that can be automated without damage and allocating personnel to processes which really stand to gain from human intelligence.

One more set of such empirical signals calling for innovation has to do with work contexts too much reminiscent of an impersonal Weberian implementation of the bureaucratic paradigm, exaggerated in terms of regulation-governed processes and not allowing enough room for interpersonal relationships, satisfaction and thus productivity and creativity of public sector personnel. The “happy bureaucracy” metaphor depicted in figure 2(b) may be difficult, or even not desirable to achieve, for several reasons. Still, allowing pure objectives- and rules-based public sector management systems to become more blended with relations-based systems of everyday work can certainly facilitate the work of public sector personnel and allow the latter to better serve both citizens and businesses as well as the public sectors themselves, which makes this worthy as an innovation goal.

**Figure 8. (a) Weberian bureaucracy and (b) “happy bureaucracy” paradigms, as alternatives for organizing the everyday work of public sectors.**



Sources: (a) <https://www.google.com/search?q=weberian+bureaucracy&tbm=isch> (b) <http://www.orangescape.com/images/first.svg>.

The challenge herein discussed, therefore, has to do with establishing in a more systematic way a set of everyday work signals that can serve as whistle-blowers for the need to innovate and as alerts for public sector managers and lower-level frontline personnel alike.

## 2. Challenge A2. Establishing a system of empirical When-to-Innovate signals

It would be equally important, to foster innovation in public sectors, to have in place a system of empirical indicators that would act as whistle-blowers for (a) the need, (b) the ability and/or (c) the advisability to innovate at specific moments, signalling that there are, in the current state of operations, things that can be done better. Such empirical indicators may include, for instance:

- observed cases of unmet needs of citizens and businesses, with a focus on presently recurring ones;
- observed cases of unmet needs of citizens and businesses, with a focus on new and upcoming ones;
- recurring problems with rules and procedures, the latter becoming more and more complicated;
- recurring problems with rules and procedures, the latter making operations more and more slow;
- recurring problems with rules and procedures, with compliance to the latter made more and more costly.

At the same time, corresponding indicators for the need to innovate in front of crises, are obviously

- emergencies that have arrived already;
- emergencies that we see coming;

- humanitarian crises that have arrived already;
- humanitarian crises that we see coming;
- technical disasters that have happened or are feared to happen;
  - natural disasters that have happened or are feared to happen.

Further indicators for innovation may be drawn from the results of simple operational analyses, such as

- SWOT strengths, which allow innovation;
- SWOT weaknesses, which need innovation to overcome;
- SWOT opportunities, which need innovation to become ready for up taking;
- SWOT threats, which need innovation to prepare for facing.

The objective of this challenge, therefore, has to do with building and creating consensus over a set of signals as the above that would activate at specific moments organizational alerts for innovation.

### 3. *Challenge A3. Coping with paraprocedural and a-procedural as sources of micro-innovation*

The everyday work of public sectors abounds with cases in which public sector personnel are faced with the need to handle cases and needs not covered by existing rules and procedures; as well as solve problems that rules, and procedures may themselves create.

These instances call for what could be termed *para-procedural*, i.e. finding some solutions and repetitively employing them, thus establishing in practice alongside formal rules and procedures some semi-formal ways of work, as well as for what could be termed *a-procedural*, i.e. finding one-off ad hoc ways of solving special and rare cases of exceptions.

Para-procedural and a-procedural cannot be readily recognized as legitimate principles of work, as this could create grounds for using them in unfair ways. Still, when used fairly, they have the potential to innovate, i.e. to lead to ways of making some processes and services better suited to special cases and exceptional needs. What is more, such *micro-innovations* may at times be based on really good ideas, that could be generalized to many other non-special cases as well, and lead to more general and substantial improvements. In this way, para-procedural and a-procedural can best not be considered a priori as something to accept or to reject in all cases, but rather as something that can only be evaluated on a case by case basis, and so much so as a potential source of micro-innovation, and possibly of broader innovation.

At the same time, para-procedural and a-procedural can be considered as outcomes of a more general condition, which has to do with the ways of work explicitly allowed and explicitly prohibited in public sectors. What about potential solutions that current rules and procedures neither explicitly allow nor explicitly prohibit? Should they be considered as allowed (given that they are not explicitly prohibited), or prohibited (given that they are not explicitly allowed)? An answer to this question may significantly affect the potential for para-procedural, a-procedural and thus micro-innovation in the everyday work of a public sector.

The objective of the challenge herein, considering the above, would be to establish practical ways for monitoring instances of para-procedural and a-procedural in the everyday work of public sectors, evaluating their legitimacy in a fair way, and creatively consider them as potential sources of micro-innovations that could be generalized to broader cases and needs.

### 4. *Challenge A4. Establishing practical principles on selecting the stakeholders to drive innovation*

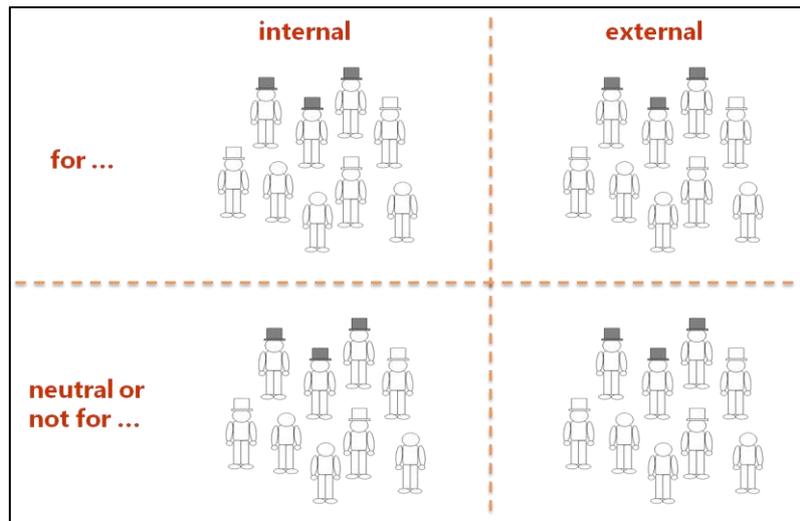
In the everyday work of public sectors, personnel are ultimately finding themselves managing relationships and objectives. Objectives, at the same time, are communicated, negotiated and managed through relationships, which leads to managing relationships as the perhaps most essential aspect of everyday work.

More strategic work, as that of innovation, is not an exception to this. Indeed, innovations like all other objectives need to be communicated, negotiated and managed through relationships, and their effective

progress is thus dependent on the existence of a critical mass of stakeholders and relationships in favour of them.

Figure 9 depicts this idea of critical mass. For any case of innovation, at any point in time, it can be expected that there will be stakeholders at different organizational levels (from high- to middle- to low-management) within the organization with views in favour of it (upper left quadrant), stakeholders at different organizational levels within the organization with views neutral or even negative towards it (lower left quadrant), as well as external stakeholders with views for, or neutral/against this innovation (upper right and lower right quadrants, respectively).

**Figure 9. A schematic view of stakeholders in favour of (upper quadrants) or neutral/against (lower quadrants) an innovation, internally within (left quadrants) and externally to (right quadrants) an organization at any point in time.**



Source: Consultant, original work for the study on Fostering Innovation in the Public Sectors of the Arab Region.

A first objective of the challenge herein, therefore, would be to establish practical ways of communicating, negotiating and managing innovations so that the stakeholders for them in the upper quadrants of Figure 3 can comprise a critical mass when compared to the set of stakeholders neutral/against them in the lower quadrants. A second objective, at the same time, would be to establish a way of communication and negotiation of innovation ideas within the organization, which would explicitly acknowledge the following set of principles:

- it may be unrealistic to expect everyone to be a real innovator;
- it may be unjustified to pre-conceive someone as unable to become a real innovator;
- real innovators may come from different backgrounds and walks of life, and who can be a real innovator is hard to tell in advance;
- she or he who will really innovate can be anyone, so everyone needs to be given the chance to innovate.

Such systems of innovation management are often facing barriers of a priori pessimistic views, having to do with conceptions of apathy, untrustworthiness and ineffectiveness for fellow workers, especially for fellow workers at the lower-management and front-line levels of the organizational pyramid. Still, it should be mentioned that such conceptions often operate as self-fulfilling prophecies and create vicious circles, which can only be broken by undertaking an optimistic approach from the very beginning of the process, based on the following principles:

- it is worth to build processes for listening to and invite ideas, because they shall arrive;
- it is worth to trust the ideas that arrive, because then we shall also be trusted by their contributors;
- it is worth to take up these ideas, because then more such ideas shall arrive.

The challenge involved herein is to find simple ways for applying these principles in a fair and monitored manner, and thus create a virtuous circle for innovation ideas to be contributed, for potential innovators to come forward, and for the critical mass needed to support any innovation to become formed.

5. *Challenge A5. Establishing practical rationale on the costs and pays of innovation and non-innovation*

This challenge is based on the idea that any decision for action (in the sense of doing something immediately after the decision is taken) or inaction (in the sense of postponing the decision for action further in the future) is always a two-sided one, with a good side of gains and a bad side of losses.

This applies to innovation decisions as well, and the challenge herein has to do with (a) recognizing that innovation pays but also costs, non-innovation costs but may also pay, and (b) establishing ways practical and easy to apply in the context of public sectors' everyday work for deliberating on the associated costs and pays. In this context, a cost structure that can be considered for innovation decisions as a departure point comprises

- procurement costs;
- implementation costs;
- training costs; as well as
- costs incurred by the management of lateral effects;

whereas the corresponding payback structure comprises

- savings;
- satisfaction;
- compliance;
- productivity;
- prosperity; and, perhaps the most important payback of all
- gaining citizens on the side of the innovating organization, and giving them hope for a better future.

At the same time, the cost structure of a non-innovation decision comprises

- losing all the paybacks of the innovation decision that has not been taken; and
- exposing current ways of work to dangers of entropy and obsolescence.

Still, a payback structure of non-innovation decisions exists as well, and it comprises avoiding the risks and costs of:

- innovation, overall;
- innovating too early, before the real needs have shown up or before the solutions to apply have acquired maturity;
- innovating in a fragmented way, without being able to harmonize this innovation with the needs and innovations of other branches of the public sector;
- innovating in the wrong direction, not really meeting the needs addressed, or inadvertently creating more problems than the ones solved, or taking away resources from other more important innovation decisions.

It should be noted, therefore, that the payback structure of non-innovation is not a trivial one, and non-innovation may not be attributed only to inertia, ignorance or indifference, but also on the need to wait until more informed and wise decisions are possible.

It is especially this last point which makes the objective of establishing a practical rationale on the costs and pays of innovation and non-innovation a real challenge, due to its multi-faceted nature that does not easily allow for simple answers.

6. *Challenge A6. Thinking critically about the differences of innovation from other affine processes*

According to the approach taken in the present study:

*“In general, innovation is the implementation of a new way of achieving a result and/or performing work. It can be completely new, a change in to a current system, or something that already exists elsewhere implemented for the first time. This idea can be a product, service, policy and programme, or a process.<sup>102</sup> It can have as its focus new or adapted technologies, or technology for supporting other forms of public sector innovation. Innovation in the public sector differs from the private sector in that the focus is not monetary gain or greater economic success for a few. The objective of public sector innovation is to enhance the social welfare and economic growth of a country for a better sustainable future.”*

Still, in the realities of public sectors’ everyday work and strategic management, innovation is often discussed alongside several other affine terms, with which it relates without coinciding. This fact, beyond a theoretical interest, has practical implications as well, as it risks blurring the rationale and decisions related to innovation. The objective of the challenge herein, therefore, is to arrive at identifying the relationship of innovation to these terms in some simple way, that can be operationalized in everyday work as well as in the innovation work and decisions of public sector personnel, and allow for a more critical and clear thinking for innovation. The departing points proposed for such an effort are as follows.

#### innovation as invention

- innovation, like invention, has to do with finding a new way to make things better;
- innovation, like invention, has to do with reading the reality in ways that others do not;
- still, invention has to do with conceiving something (a product, a process) that did not exist before;
- innovation, often, has to do with taking things that exist and improving them, bringing them to new users, or maybe bringing them to new uses;

#### innovation as change

- innovation is not possible without change;
- yet, changes may be forced by constraints to do more with less, or policies to do things differently, whereas innovation is driven by improvement objectives;
- innovation is trying to maximize positive change and impacts;
- innovation is trying to keep unwanted side effects down to zero;
- innovation is trying to minimize necessary lateral changes;

#### innovation as change management

- innovation is one more source of changes to manage;
- when we think as change managers, we are not friendly to that;
- effective change management can help an innovation take off;
- poor change management may defame an innovation;

#### innovation as process improvement

- improving a process may mean making it more effective, more efficient;
- improving a process may mean making it more documented, standardized and mature;
- innovating a process may mean changing this process to meet these internal goals, or to better serve external stakeholders;
- any process may lend itself to innovation;
- improved and mature processes provide more safe grounds for innovation, without fear of internal process problems;
- innovation implies process improvement in this sense;

#### innovation as reform

- reforms have to do with macro-level efforts to re-engineer systems towards new objectives;
- there are reforms that target innovation, as there are others that target policy changes and budget cuts;

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<sup>102</sup> ECOSOC, 2006.

- innovations can be made at the macro-, meso- or micro-level;
- innovations, when they require legally-binding changes in rules and processes, need these changes to get revamped in reforms;
- innovations that find room to happen within existing rules and processes, do not need reforms.

7. *Challenge A7. Thinking critically about the differences of innovation from technology uptake*

In a similar way to the previous challenge, the objective of this challenge is to arrive at identifying the relationship of innovation to technology uptake (and Information and Communication Technology uptake in particular) in some simple way, that can be operationalized in everyday work as well as in the innovation work and decisions of public sector personnel, and allow for a more critical and clear thinking for innovation. The departing points proposed for such an effort are as follows.

- innovation is possible without new technology;
- technology can offer means for innovation, if we have an idea and an opportunity;
- technology can offer opportunities for innovation, if we have an idea;
- technology can offer ideas for innovation, to make itself useful;
- innovation finds itself linked to new technology;
- often, the biggest hope that technology brings along is innovation;
- innovation finds itself driving public sector technology procurement.

8. *Challenge A8. Establishing practical understanding of what an important innovation is*

The fact that innovation decisions, even if taken at the level of higher management, are eventually enacted at the level of lower management and front-line personnel, implies that public sector stakeholders at these lower levels of management and responsibility, who may by definition lack the entire big picture of organizational objectives and priorities, still need to have a clear understanding of the importance of the innovations that they are called to enact, as this can be an essential motivating factor.

At the same time, such a clear understanding is equally essential at the level of middle and higher management, whose decisions and responsibility have effects at a greater scale.

The objective of this challenge, therefore, is being able to deploy an organization-wide common and simple understanding of the factors that make an innovation important to enact, or more important to decide than others that may be possible at any given point.

For providing a basis for such a framework of critically thinking about the importance of an innovation, it is proposed here in that innovations which

- affect the lives of many people;
- affect the lives of fragile people;
- affect the lives of underprivileged people;
- enable these people to do things that are very important to them, and were not possible before;
- help these people to do things that are very important to society, and were not possible before;
- convince these people to do things that are very important to the environment, and were not possible before;

can be considered as more important than innovations which

- are focused more on bringing forward changes, rather than on achieving real results;
- achieve very little results;
- achieve results for very few people;
- realize their achievements to the detriment of economy, society and nature.

At the same time, two exceptions to this general line of thought need to be noted. Innovations that

- even for just one person in the world, protect the single most invaluable thing, life;

- even at a micro-scale, set an example for innovativeness, and convey the idea that the only thing that constrains us, at the end of the day, is our own ingenuity and courage; although not falling under the general criteria above, can still be considered as equally important ones.

### C. CORE THEME B. CHALLENGES RELATED TO THE 1H OF INNOVATION

The challenges grouped under this core theme are challenges related to the basic *how* dimension of discussing public sector innovation as a process, namely on (a) the resources and (b) the steps needed to effectively design and realize successful public sector innovation efforts.

#### 1. *Challenge B1. Having access to different process types for innovation processes*

The objective of this challenge is to come up with practical instruments that allow public stakeholders access to different process types for innovation processes, in the form of guidance for each process type and its applicability under different assumptions and expectations.

It should be noted that, for many reasons discussed in the corresponding chapter of this study, many different process types have already been proposed in theory and practice. Each of these process types comes along with promises for (a) bringing forward better innovation and/or (b) bringing forward innovation in better ways, claiming innovation that makes better-targeted and more sustainable improvements, innovation that is closer to the real needs of stakeholders, innovation that takes up fewer resources and less time to affect.

The sheer number of these process types (approx. 10 different process types have been recognized and discussed in the context of this study), as well as the volume of the literature, including book sources, academic papers, practitioner reports and websites that exist for most of them, render the objective of gaining practical understanding to all of them not trivial to achieve.

At the same time, the need for these process types to be understood not just by the innovation team within a public sector organization but also, at least to some working extent, by all the stakeholders called in to enact the innovations decided, makes this objective a real challenge, i.e. a difficult, important and at the same time stimulating one.

In the context of the study, this challenge has been faced by deploying an empirical guide (IPEG) for the process types recognized, and providing simple practical guidance for the applicability scope of each process type, examples of innovation efforts that qualify under this process type, as well as selected references for further study. Still, such an instrument alone does not suffice to meet this challenge in its entirety.

The effort needed beyond deploying innovation process type guides such as the one proposed in this study has to do with (a) revising and improving such guides on a regular basis, involving in this process not only experts to ensure quality but also intended audience members to ensure usability, as well as (b) providing training and capacity building on the use of specific process types for public sector innovation, with the help of selected cases and examples.

#### 2. *Challenge B2. Thinking critically about the process types practically needed*

Following up from the previous challenge, a discrete challenge has to do with been able to critically think about the different innovation process types practically needed to a public sector organization.

This challenge is based on the idea that public sector organizations may neither have the full resources, nor the real need to invest in all the innovation process types available in the literature, as also discussed during the *Workshop on Fostering Innovation in the Public Sectors of Arab Countries*, organized by UN ESCWA in Cairo, Egypt, on October 30-31, 2017. In this respect, a challenging task for a public sector organization would be to think critically about the innovation process types that seem more important than others for this organization's needs, and place its priorities on investing on the more important process types identified.

From a somewhat different perspective, this challenge might take the form of a problem of finding the minimum number of innovation process types that can meet the needs of a public sector organization, along some simple dimensions. For instance:

- a process type for simple cases of expected innovation needs, and a process type for some more complicated cases of more original needs;
- a process type for innovating in the small, and a process type for innovating in the large.

In all cases, this challenge can best be handled by public sector organizations themselves. The best way for a public sector organization to handle this challenge would be based on building up its understanding on the different process types available, and then running a study on identifying a small number of process types best fitting its needs, according to some practical rationale.

At the same time, meeting this challenge can also be facilitated by instruments that enable public sector innovation workers to identify the process types better suited to their needs through simple dialogic protocols, based on question-and-answer guides. Such an instrument (EIPwiz) has been developed in the context of this study, together with guidance on its potential use cases.

### 3. *Challenge B3. Having access to diverse examples for public sector innovation*

This challenge has to do with providing public sector organizations with access to a rich set of examples for public sector innovation, and at the same time curating this access along the following aspects:

- make sure that examples are available that cover different process types of innovation, as well as different aims and scope of innovation efforts;
- make sure that enough information is available for each example, considering not only the official example description but also additional third sources discussing this example, its details and implications;
- take care to annotate examples in a standard way, so that they can be made as much as possible comparable to each other, and help identify areas in which further examples are needed;
- document, alongside the examples themselves, also the repositories from which they have been harvested, allowing interested public sector organizations to revisit these repositories in search of more examples;
- curate an overall ongoing collection of selected examples, which needs to be regularly updated with new entries and kept organized for usability.

These needs have been confronted, in the context of the present study, by providing an extended set of examples for public sector innovation from different sources and repositories, cataloguing the latter in the form of knowledge resource collections, as well as developing a conceptual model (IPTTM) that allows to annotate innovation examples with metadata along a few different dimensions.

### 4. *Challenge B4. Monitoring and embracing innovation from diverse sources*

One more challenge also referring to examples but discrete from the previous one has to do with the need for public sector organizations, just like any other organizations interested in innovating, to monitor and embrace innovation from diverse sources.

The basic idea underlying this challenge is that, examples of innovation interesting for public sectors, do not necessarily come solely from the work of peer public sectors in other countries. Indeed, such examples may come from technological innovation, social innovation, entrepreneurship innovation, innovation resulting from academic research, international civil society innovation, as well as international organizations and networks.

In this respect, public sectors interested in innovation need to monitor innovation examples and developments from these diverse sources. At the same time, beyond monitoring, public sectors need to open the thinking and process required to embrace innovation examples coming from such diverse sources. The important idea here is not that any example, coming from any source, would be readily tailor-made to the needs of a public sector. This may not be the case at all, but still such an example may be helpful as a source of inspiration for new

ways of ameliorating processes, products and services; the critical capability, in this respect, on the side of public sectors, would be to recognize and abstract the essential traits of innovation examples coming from different domains, and be able to transliterate these into ideas for their own innovation needs and efforts.

#### 5. *Challenge B5. Having access to knowledge resources for public sector innovation*

The number of themes that may be pertinent to public sector innovation efforts is large, and the number of knowledge resources that are available for these themes is even larger.

The more that these knowledge resources can be made available to public sector innovation workers, the more the innovation work of the latter can be expected to be better informed and better oriented to successful results.

Still, it is also clear that innovation workers within public sectors are faced with amounts of ongoing work and deadlines that impose pressure and make their time fragmented, which certainly does not help with the need for accessing large amounts of resources.

The challenge, therefore, is to build up collections of knowledge resources of good quality for public sector innovation workers and at the same time allow the latter with time for accessing these resources.

Regarding the first part of this challenge, in the context of the study the IKRx methodological exercise has been realized which has resulted in cataloguing approx. 290 book sources, organized around 33 core themes; approx. 100 academic journals, organized around 5 core themes; approx. 90 websites and topical webpages, organized around 4 core themes; approx. 70 background reports by international organizations, organized around 6 core themes; approx. 160 recent (2015 onwards) insight reports by management and IT consultants; approx. 190 online resource webpages by management and IT consultants; approx. 310 recent (2012 onwards) academic papers on public sector innovation; and approx. 40 recent (2015 onwards) academic papers on deliberation tools and platforms. All these resources are included in the study results, together with documentation of the methods and sources that have been used for finding them.

At the same time, the challenge with knowledge resource collections as this one, is (a) to make them available in non-linear ways (searchable by keywords and other means) to public sector innovation workers with fragmented time; and, of course, (b) to keep them updated with future developments.

#### 6. *Challenge B6. Not bypassing the potential of frugal innovation and nudging*

Frugal innovation is a process type of innovation which, according to the working definition adopted in this study, is focused on

- bringing forward small-sized and low-cost changes that may have a multiplier effect and/or desirable impacts positively disproportionate to the budget and resource consumptions that they demand; and/or removing non-essential features to make something more accessible or affordable.

Frugal innovation, in this sense, may at times be one of the simplest and less costly, in terms of financial costs and lateral changes, process types for innovation. Still, it should not go unnoticed that, being accustomed in everyday life to paying for valuable products and services that often come at a cost, we are subject to a cultural bias for considering price as consequence of value, or even as a synonym for value, and thus reversing this relationship to consider something of low price as something of low value as well. Due to this bias, despite the potential value of frugal innovation, it is not easy to exclude the possibility of looking down on this approach to innovation as one of low value and low quality in its outcomes.

The first part of the challenge discussed herein, therefore, has to do with the need to examine frugal innovation in a fair way, just like all other possible innovation process types could be examined for a case in which innovation is needed. In fact, an even more important challenge could be to create a positive preference towards frugal innovation, in the sense of prioritizing it as the first possible innovation process type to examine, and moving on to considering other process types only afterwards.

One of the tactics nicely suited to frugal innovation is that of nudging. The term comes from nudge theory, a term in behavioural science which, according to the relevant article on Wikipedia, “... *proposes positive reinforcement and indirect suggestions to try to achieve non-forced compliance to influence the motives, incentives and decision making of groups and individuals. The claim is that nudges are at least as effective, if not more effective, than direct instruction, legislation, or enforcement.*”<sup>103</sup>

The nudge theory has been taken up by a few scientists as well as public sectors around the world, and applied in cases where the objective was to achieve positive reinforcement of citizen / business beneficiaries to comply to the law, without recurring to enforcement or fines. The Wikipedia article on the Behavioural Insights Team<sup>104</sup>, one of the first research groups globally to uptake nudge theory and apply it in real-world examples and needs, reports on a few such examples, where positive results were attained with sending out on time simple personalized notifications to the people concerned<sup>105</sup>.

In this context, the second part of the challenge discussed herein has to do with not overlooking the potential of simple tactics, such as nudging, as implementations of a frugal approach to innovation that can still bring forward effective outcomes.

#### 7. Challenge B7. Clarifying the double relation between innovation and sustainability

Adopting as a working definition for sustainability the one provided in the corresponding Wikipedia “good article”-rated<sup>106</sup> lemma, “*In ecology, sustainability ... is the property of biological systems to remain diverse and productive indefinitely*”<sup>107</sup>. This definition is closely related to the meaning many times attributed to the concept of sustainable innovation, taken to refer to innovation that contributes to sustainability and/or to sustainable development.

As important as this goal is, it should be kept aside from a more literal sense of sustainable innovation, taken to mean the application of sustainability principles to innovation processes. In this line of thought, the working definition of sustainable innovation considered in this study is as follows:

- beyond deploying a specific innovation, establish material and immaterial conditions necessary and sufficient to create an innovation process without foreseen end, that will generate innovations and inform, motivate, improve and re-fuel itself through the innovations produced already, to advance by regenerating the resources that it consumes.

This definition, therefore, considers sustainable innovation as an innovation process type that results from applying sustainability principles to innovation, rather than from the opposite, i.e. applying innovation principles to sustainability.

The need to clarify this double use of the term sustainable innovation is recurring in the discussion and literature about innovation process types. At the same time, this double use is also reflected in the thinking and practice of public sector innovation workers. Although both meanings of the terms (innovating for sustainability, and sustaining innovation) are equally important as goals of innovation processes, the challenge to clarify their difference has practical implications, when there is a need to communicate the idea that a process type of innovation is sought which could (a) allow diversity, and (b) reproduce itself, just as sustainable biological systems do.

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<sup>103</sup> Source : [https://en.wikipedia.org/wiki/Nudge\\_theory](https://en.wikipedia.org/wiki/Nudge_theory).

<sup>104</sup> Source: [https://en.wikipedia.org/wiki/Behavioural\\_Insights\\_Team](https://en.wikipedia.org/wiki/Behavioural_Insights_Team), Behavioural Insights Team website <http://www.behaviouralinsights.co.uk/>.

<sup>105</sup> The consultant is thankful to Mr. Jeremy Millard, Senior Consultant, Danish Technological Institute, participating in the *Workshop on Fostering Innovation in the Public Sectors of Arab Countries*, organized by UN ESCWA in Cairo, Egypt, on October 30-31, 2017 as an expert speaker, for bringing forward the pointer to Behavioural Insights Team during the workshop discussions.

<sup>106</sup> More information available from [https://en.wikipedia.org/wiki/Wikipedia:Good\\_articles](https://en.wikipedia.org/wiki/Wikipedia:Good_articles).

<sup>107</sup> Source : <https://en.wikipedia.org/wiki/Sustainability>.

## 8. *Challenge B8. Practically identifying IT providers and tools for public sector innovation*

In a way like the above challenge, the spectrum of IT solutions to consider as possible tools enabling public sector innovation is large. Emerging paradigms of technology to consider include

- zero infrastructure and hardware as a service;
- application platformization and software as a service;
- data management and workplace virtualization;
- digital transformation and cognitive management;
- user experience and citizen journey;
- digital trust, digital innovation and digital disruption;

whereas different paradigms of tools to consider include

- closed source, software as a product tools;
- open source, software as a shared good tool; and
- no source, software as a service tools.

For all these paradigms there are pros and cons, in terms of IT management benefits and risks, as well as obvious gains and hidden costs, in terms of IT budgets. At the same time, different sources for identifying tools comprise

- competitive intelligence meta-sources;
- competitive intelligence sources;
- liveness, activity and influence assessments;
- software peer reviews providers;
- software comparison reports providers;
- OSS directory providers;
- OSS-focus provider assessments; and
- academic literature review papers.

In this context, the objective of the challenge herein is to have access to effective ways of identifying the IT solution providers and tools needed for public sector innovation efforts, and so much so in a manner practical for this task under conditions of limited resources.

To face this challenge, a systematic way of work in the form of a methodological exercise (ITOCIX) has been applied in the context of the study with a view to identifying software tools through the open competitive intelligence offerings of peer review reports, expert comparison report, open source software as well as academic providers. As an outcome of this exercise, approx. 470 SaaS/SaaS and 170 OSS tools have been selected for the IDEA/Ideation, Evolution and Assimilation phases, together with approx. 180 tools and platforms for the IDEA/Deliberation phase. All these resources are included in the study results, together with documentation of the methods and sources that have been used for finding them.

At the same time, the challenge with tool resource collections as this one, is (a) to make them available in non-linear ways (searchable by keywords and other means) to public sector innovation workers with fragmented time; (b) to keep them updated with future developments; and (c) to further develop empirically defined ways of work for identifying IT solution providers and tools for public sector innovation efforts into well-formed open source methodologies, that can be applied in low resource settings just as well as in normally sourced ones.

## 9. *Challenge B9. Integrating Innovation Processes with IT/IS lifecycles*

Innovation processes, along any of the process types currently defined in the literature, all have in common some steps for idea generation and selection based on contextual information about the needs and situation of the innovating organization and its stakeholders. At the same time, depending on their degree of openness, varying along process types of closed, to collaborative to open innovation, innovation processes may also

encompass steps for the involvement of external stakeholders, as idea contributors and evaluators. Finally, innovation processes end up with ideas that, once implemented, inevitably need time to bring forward positive results, have their lateral effects managed and ultimately show their merits.

On top of these requirements, innovation - in nowadays organizations and public sectors alike – is often implemented through IT technologies, and it typically incurs direct or lateral changes to existing IT-based systems, services and infrastructures.

In this respect, there is a need to integrate innovation processes with IT/IS processes, in ways that ensure smooth reflection of innovation change ripples to IT/IS systems and applications, management of the lateral effects on the latter as well as use of the latter to help innovations bring forward their benefits. This need is indeed a challenge, given that innovation processes may touch upon assumptions which lie at the foundations of IT-based existing systems of work, and rightly so as the need to avoid lateral effects on IT systems should not operate as a barrier to innovation.

In the context of the study, this challenge has been faced by developing the IDEA lifecycle, an overall lifecycle comprising ideation, deliberation, evolution and assimilation phases for innovation, with the IT/IS development and changes necessary accommodated in the evolution phase. Beyond that, in each of these phases the lifecycle recognizes the need to use different categories of IT tools, which have been identified using the methodological approach discussed in the corresponding challenge above, and the overall IDEA model accommodates guidance for varying numbers of repetitions of each phase and the overall lifecycle, depending on the needs of each case.

The IDEA lifecycle, therefore, has been proposed to overcome the challenge herein. Still, this lifecycle model is open to improvements, as the challenge for integrating innovation processes and IT/IS lifecycles remains and is a complex one.

#### D. CORE THEME C. CHALLENGES RELATED TO BRINGING IN MORE STAKEHOLDERS

The importance of bringing in more stakeholders, both internal and external to innovating organizations, to public sector innovation efforts, stems from the following premises:

- more stakeholders can contribute more ideas, and thus allow choosing from a richer set of alternatives;
- more stakeholders can raise more issues, and thus allow to better explore the universe of design choice implications and lateral effects;
- more stakeholders can raise more diverse needs, and thus allow the final innovations designed to be more inclusive;
- involvement of more in number, and more diverse, stakeholders means that consensus is built across a larger and more representative set of actors, which in turn increases the probability of acceptance of the final innovations in their broader context;
- consensus building with more stakeholders means that, at the end of the process, there will be more actors motivated to operate as multipliers for communicating this innovation to their broader contacts and networks.

At the same time, bringing in an innovation process an overly large number of stakeholders is not exempt from problems, as it may make the process disorganized, progress difficult to achieve, and final consensus difficult to reach. Still, it should be noted that these problems are not necessarily attributed to the personal characteristics of the stakeholders themselves, but also to poor models of communication of objectives, motivation of participants and synthesis of views. The challenges involved herein, therefore, essentially have to do with identifying effective, balanced and problem-proof models that allow, at the same time, to achieve two contradictory objectives: (a) involved many stakeholders; and (b) keep the process controlled and creative.

In this respect, the challenges listed below under the present core theme, each refer to different emerging paradigms for bringing in more stakeholders to innovation efforts, and especially stakeholders external to the innovating organization. The latter typically remains the innovation process owner, although there are

paradigms, or variations of some paradigms that follow, in which the innovation process is not owned solely by the initiating organization, but eventually co-owned by this organization together with the stakeholders involved.

The objective of each one of the following challenges is for public sector organizations to open their thinking and innovation work to the paradigm presented in each challenge, and arrive at deploying balanced ways for integrating this paradigm into their innovation efforts. The paradigm mentioned in each challenge is further documented with some selected examples and/or sources for further reading.

### 1. *Challenge C1. Linking public sector innovation to participatory design*

Some basic premises for participatory design efforts are as follows:

- the way things work, or fail to work, is heavily influenced by their design;
- together, we can make choices more inclusive and better for all.

Indicative examples of such efforts may be found in sources such as

- *Co-design for Public Interest Services*, a recent book (2017) authored by D. Selloni<sup>108</sup>;
- the agenda and proceedings of the Participatory Design (PDC) conference series<sup>109</sup>;
- emerging efforts on applying participatory design principles to democratic participation processes, such as constitutional participatory design<sup>110</sup>.

### 2. *Challenge C2. Linking public sector innovation to crowdsourcing*

Some basic premises for crowdsourcing efforts are as follows:

- crowds are not inevitably destructive; they can be constructive as well;
- the many, summing up the information and knowledge that they provide, create more wisdom than the few;
- the many, summing up the work and resources that they provide, create more strength than the few.

Indicative examples of such efforts may be found in sources such as

- the COBWeb Citizen Observatory Project<sup>111</sup>;
- the Natural History Museum Citizen Science Program<sup>112</sup>;
- WeSenseIt Citizen Water Observatories<sup>113</sup> and many others.

### 3. *Challenge C3. Linking public sector innovation to pervasive participation*

Some basic premises for pervasive participation efforts are as follows:

- the public sphere is not restricted to formal politics; many things in everyday life are political in nature and call for citizen choices and feedback;
- people can contribute as active citizens, if we make this meaningful.

Indicative examples of such efforts may be found in sources such as

- the b-Part: Building Pervasive Participation project<sup>114</sup>;
- *The Ludic City: Exploring the Potential of Public Spaces*, a book authored by Q. Stevens<sup>115</sup>.

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<sup>108</sup> More information available at <http://www.desisnetwork.org/2017/07/17/codesign-for-public-interest-services-a-new-book-born-at-polimi-desis-lab-2/>.

<sup>109</sup> Cf. <https://pdc2018.org/> for the current edition of this conference.

<sup>110</sup> As an example, cf. Participatory Constitutional Design: A Grassroots Experiment for (Re)Designing the Constitution in Greece, online available from [https://link.springer.com/chapter/10.1007/978-3-319-54142-6\\_10/fulltext.html](https://link.springer.com/chapter/10.1007/978-3-319-54142-6_10/fulltext.html).

<sup>111</sup> URL: <https://cobwebproject.eu/>.

<sup>112</sup> URL: <http://www.nhm.ac.uk/take-part/citizen-science.html>.

<sup>113</sup> URL: <http://www.wesenseit.com/>.

<sup>114</sup> URL: <http://www.b-part.eu/>.

<sup>115</sup> More information available from [https://www.goodreads.com/book/show/1889786.The\\_Ludic\\_City](https://www.goodreads.com/book/show/1889786.The_Ludic_City).

#### 4. *Challenge C4. Linking public sector innovation to playful brainstorming*

Some basic premises for playful brainstorming efforts are as follows:

- if we feel well in a brainstorming process, we will contribute more and better ideas;
- a process, to make us feel well, must feel less like work and more like play.

Indicative examples of such efforts may be found in sources such as:

- *Game storming for Innovators, Rulebreakers, and Changemakers*, a book authored by D. Gray and others<sup>116</sup>.

#### 5. *Challenge C5. Linking public sector innovation to playful democratic participation*

Some basic premises for playful democratic participation efforts are as follows:

- disengagement from and apathy towards politics, which also have to do with the gravity and formality of participation processes, among other factors;
- combining participation with fun, will be more inclusive and mobilizing.

Indicative examples of such efforts may be found in sources such as:

- *Making Democracy Fun. How Game Design Can Empower Citizens and Transform Politics*, a book authored by J.Lerner<sup>117</sup>.

#### 6. *Challenge C6. Linking public sector innovation to DIY and DIWO citizenship*

Some basic premises for DIY (do-it-yourself) and DIWO (do-it-with-others) efforts are as follows:

- we take pride in doing things ourselves, for the sake of them, and we like to find others that feel the same;
- what we feel we must do as active citizens, including solving our problems, we can do it ourselves.

Indicative examples of such efforts may be found in sources such as:

- *DIY Citizenship. Critical Making and Social Media*, a book edited by M.Ratto and M.Boyer<sup>118</sup>.

#### 7. *Challenge C7. Linking public sector innovation to visual thinking and visual storytelling*

Some basic premises for visual thinking and visual storytelling efforts are as follows:

- write for me a report, and I promise to read it; prepare for me a presentation, and I promise to attend; tell me a story, and I'll start to empathize; show me a story, and I'll start to understand;
- as human beings, we can put more of our truths in stories and pictures, than in any other format.

Indicative examples of such efforts may be found in sources such as:

- visual thinking topical webpages<sup>119</sup>;
- *The Back of the Napkin*, and *Blah Blah Blah. What to do When Words Don't Work*, two books by D. Roam, one of the basic proponents of visual storytelling<sup>120</sup>; and
- storytelling and storyboarding tools, such as Scenes<sup>121</sup>.

#### 8. *Challenge C8. Exploring the potential of innovation hackathons*

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<sup>116</sup> More information available from <http://shop.oreilly.com/product/9780596804183.do>.

<sup>117</sup> More information available from <https://mitpress.mit.edu/fun>.

<sup>118</sup> More information available from <https://mitpress.mit.edu/books/diy-citizenship>.

<sup>119</sup> An example is available from <http://www.xplanner.com/visual-thinking-school>.

<sup>120</sup> More information available from <http://www.danroam.com/the-back-of-the-napkin/> <http://www.danroam.com/blah-blah-blah-in-a-nutshell/>, respectively.

<sup>121</sup> More information available from <http://www.legaltechdesign.com/LegalDesignToolbox/2017/03/17/scenes-a-storytelling-and-storyboarding-tool/>.

Innovation marathons comprise an idea which exists for some years now. One of the early examples is *24 Hours of Innovation 2009*, an innovation marathon organized by the Board of Innovators in May 2009, in Belgium, asking several innovation-focused organizations to showcase their offerings in a 24-hour timeframe<sup>122</sup>. Recent examples include:

- the SingHealth Hackathon 2017 (Singapore, January 2017)<sup>123</sup>, focused on health applications and services;
- the Houston Hackathon 2017 (USA, May 2017)<sup>124</sup>, focused on solving civic issues and resulting in more than 100 open source software projects initiated on GitHub<sup>125</sup>;
- the Sofia Innovation Hackathon 2017 (Bulgaria, May 2017)<sup>126</sup>, focused on urban services and improvements; as well as
- the Dutch Open Hackathon (Netherlands, December 2017)<sup>127</sup>, focused on mobile applications.

It can be noted that there are several non-trivial ways in which an innovation effort is like a marathon course:

- it is open to everyone;
- preparation, endurance and persistence are all necessary to win, but not to participate;
- not a brute force process, strategies and methods can help;
- there is value in the process;

as well as ways in which an innovation effort differs:

- there is value for others in the outcome, other than setting an example;
- it is competitive but not antagonistic, there is room for many winners, yet winners are not always awarded grand prizes.

Still, based on the similarities between innovation efforts and marathons, hackathons have been developed as an event format that delivers value by:

- building on the idea that anyone may be able to innovate;
- providing an opportunity to freely choose and commit to, rather than a forced obligation;
- providing a clear challenge on what to achieve, specified at a meaningful level of detail;
- providing freedom on what to do, thus challenging creativity, collaboration and effectiveness;
- has time limits that make participant teams focus on the essential;
- pursues proofs of concepts and paradigm shifts by solving a core problem in a scalable way;
- imposes no need for participants to go down the full deployment scale.

On top of that, as it has been remarked some time now, *“Hackathons are no longer just for coders. Companies far outside the tech world are using these intense brainstorming and development sessions to stir up new ideas on everything from culture change to supply chain management.”*<sup>128</sup>

## 9. Challenge C9. Exploring the potential of innovation awards

Innovation awards comprise one more idea which exists for many years now, with a view to bringing in more stakeholders into innovation challenges, as well as bringing forward talented innovators. Some recent examples of such awards with diversity in their focus include

- the EU Prize for Women Innovators<sup>129</sup>, focused on the gender aspect of innovators;
- the ISPIM Innovation Management Dissertation Award<sup>130</sup>, focused on new innovators;

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<sup>122</sup> More information available from <https://www.boardofinnovation.com/blog/2009/05/20/what-happened-during-the-24-hours-of-innovation-2009>.

<sup>123</sup> More information available from [http://www.singhealthresidency.com.sg/Pages/msc\\_45\\_ff.aspx](http://www.singhealthresidency.com.sg/Pages/msc_45_ff.aspx).

<sup>124</sup> More information available from <http://housthonhackathon.com>.

<sup>125</sup> More information available from <https://github.com/sketch-city/project-ideas/issues>.

<sup>126</sup> More information available from <http://investsofia.com/en/ideas-for-a-better-sofia-sofia-innovation-hackathon-2017>.

<sup>127</sup> More information available from <https://dutchopenhackathon.com/p/faq>.

<sup>128</sup> Spaulding, E. and Caimi, G. (2016). Hackathons Aren't Just for Coders. *Harvard Business Review*, 1 April 2016. Available from <https://hbr.org/2016/04/hackathons-arent-just-for-coders>.

<sup>129</sup> More information on the current edition available from <http://ec.europa.eu/research/prizes/women-innovators/index.cfm?pg=home>.

<sup>130</sup> More information on the current edition available from <https://www.ispim-innovation.com/dissertation-award>.

- the AIF Innovation Prize for Africa<sup>131</sup>, geographically focused; as well as
- the challenge-focused Blue Bag Water Innovation Award Challenge, organized in 2015 by Lund University, Sweden, for the City of Jakarta, Indonesia<sup>132</sup>.

It can be noted, at this point, that innovation hackathons and innovation awards have some basic similarities, given that they can both motivate innovation, and communicate innovativeness at the same time. Still, beyond these similarities, these two formats of events have several differences, on the basis that

- hackathons call for good results in a set (very short) deadline, whereas awards evaluate end results independently of the time needed, come with a deadline well ahead, and recur on some regular basis to allow a “next time” concept;
- hackathons are typically addressing ingenious teams, whereas awards are typically addressing talented individuals
- hackathons may best serve for creating interest, awareness and a culture for innovativeness, whereas awards may best serve for establishing a tradition, examples and a culture of excellence.

#### 10. Challenge C10. Linking public sector innovation and interest groups

A final challenge included in this thematic group has to do with finding practical and balanced ways of linking public sector innovation efforts to interest groups. The online edition of Encyclopaedia Britannica defines an interest or pressure group, as a political science term, as : “... *any association of individuals or organizations, usually formally organized, that, on the basis of one or more shared concerns, attempts to influence public policy in its favour. All interest groups share a desire to affect government policy to benefit themselves or their causes. Their goal could be a policy that exclusively benefits group members or one segment of society (e.g., government subsidies for farmers) or a policy that advances a broader public purpose (e.g., improving air quality). They attempt to achieve their goals by lobbying—that is, by attempting to bring pressure to bear on policy makers to gain policy outcomes in their favour.*”<sup>133</sup>

As can be seen from this definition, interest groups are not necessarily to be considered as ego-centric formations focused entirely on their own benefits and profits. There can be private interest groups that press for policies in favour of profit-making practices, as there can be civil society interest groups that press for SDG-related goals.

In this respect, and given that interest groups are formally organized and have their own structured internal processes for synthesizing member views, whereas they voice the interests and/or concerns of a specific type of stakeholders, their participation in public sector innovation processes may be meaningful, to help with the inclusiveness of an innovation process and the consensus built around it. The challenge, then, on the side of the public sector, would be to develop a balanced way of including interest groups in innovation processes, without nevertheless jeopardizing the public sector’s freedom to make the final decisions.

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<sup>131</sup> More information available from <http://innovationprizeforafrica.org>.

<sup>132</sup> More information available from <http://www.bluebagaward.com>.

<sup>133</sup> Source : <https://www.britannica.com/topic/interest-group>.