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ID 1608 | ADAPTING TO ADAPTATION: FLEXIBLE PLANNING, POLICY MAKING, AND THE TRANSITION FROM REACTION TO (PRO)ACTION

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1 INTRODUCTION

Traditional planning relies on a cycle of plan formulation/implementation/revision to keep planning instruments up-to-date and more or less effective in face of evolving planning contexts. The inability of static physical plans to respond to changes in the planning context (such as shifts in demographic trends, varying demands for certain land-uses, requests for new facilities or infrastructures, or the obsolescence of others) has been the subject of a long line of inquiry in planning theory. The frequent revision of a plan may help in increasing the plan's adherence to the changing reality, but in essence, a plan becomes increasingly obsolete from the moment it is crystalized in a fixed regulation and maps. As a response, several innovations have been introduced to the planning practice so as to allow the plan to remain as suited as possible to the evolving planning context, such as scenario planning or flexible planning (Friedman 2007).

Climate change and, more specifically, Sea-Level Rise (SLR), introduces a new dimension of variability which is yet to be adequately addressed by planning theory and, especially, practice. Our point-of-view is based on the idea that SLR is instilling the planning setting or context, with an uncontrollable (at the local/regional scale) change to the planning setting, and one that cannot be planned- or zoned-out.

The natural variability and uncertainty over the evolution of a given area are arguably the principal reason planning is required in the first place, so some degree of uncertainty over the outcome of a given planning cycle has always been a major preoccupation of the planning process. Nevertheless, we have developed solutions and means of averting or promoting certain outcomes (by way of zoning, by-laws, incentives, taxes and building restrictions). These solutions have tended to require that the outcomes be reasonably predicted from the onset, so that the planning solutions may be adopted in order to prevent them or promote them (Hopkins, 2001).

For most urban transformations, these outcomes are the result of purely anthropogenic actions, whether they be a single major decision from a public entity (such as the relocation of a container terminal) or the consequence of a multitude of individual decisions (the gentrification of a given neighborhood). Being the consequence of human action, most of these alterations can be planned for and, more importantly, controlled through the introduction of mechanisms encouraging or discouraging the said changes.

This is not the case with SLR. It cannot be controlled as a phenomenon, as it will occur regardless of any decisions one may introduce at the local level. And it is an undesirable change for most urban settings, as infrastructure and urban development were not designed to face it. But, unlike most other undesirable changes to the planning context, it cannot be "planned-out". It is unreasonable to ignore the effects SLR will have over shorelines and safety ratings of coastal protection infrastructure, and yet most planning

instruments are still not equipped to address the specific challenges posed by this threat, as they are unequipped to deal effectively with high levels of uncertainty.

What we propose is a model of agile/pro-active planning that addresses precisely the issue of dealing with uncertainty. We advocate that this model is especially suited to address planning with SLR: whereas SLR cannot be “planned-out”, it can certainly be “planned-for”, by adjusting the planning mechanisms to allow speedy and effective adjustment of its actions and respective tasks as new knowledge, including assessment of impacts or innovative adaptive solutions, become available. Our model allows an expedite adjustment of the planning process so that the dynamic nature of the changes being experienced by the planning context itself may be adequately addressed by the planning framework, and subsequently planned for.

Our main contention is that a static (or rather, “episodic”) plan as the result of arbitrary planning cycles is no longer an adequate response to an ever-changing, and highly unpredictable, planning context. If the complexity of the urban phenomena and ecological processes were already compelling arguments for introducing flexible and adaptive planning frameworks, we trust the intrinsic variability introduced onto the system itself by climate change will make the adoption of adaptive planning frameworks, more than a possibility, rather a necessity.

The difficulty in adapting environmental planning frameworks to these new challenges arises not only from the unique nature of sea-level rise, but equally from the frequent unwillingness of policy-makers to adopt new solutions, especially when these will have potential impacts over the existing status quo. Depending on the geographical context, these will range from the rejection of expanded public budgets or mandates for environmental planning, resistance to all measures that may have impact over existing property rights, the outright disavowal of sea-level rise as a legitimate issue, the inflexible defense of existing jurisdictions and mandates, or resistance to the introduction of planning mechanisms that would entail the sharing of decision-making power.

2 PLANNING WITH UNCERTAINTY

The inability of traditional planning to adequately respond to highly dynamic and uncertain planning contexts has led to the identification of a necessity to instill the planning practice with greater flexibility and a capacity to adjust to a shifting planning context. While revision can help realign the plan with ongoing strategies, in essence, a plan becomes increasingly obsolete from the moment it is crystalized in a fixed regulation and maps.

Planning has, therefore, typically depended on the certainty of outcomes in order to fully succeed: the “good” outcome of the planning practice is that, at the end of the plan’s implementation, reality will “adhere” as closely as possible to the planned outcome. Also, it typically relies on a reactive stance of revision based on the shortcomings identified ex post as a result of an earlier plan’s implementation. In contexts of high uncertainty, this often means the plan is permanently attempting to “catch up” with the planning context.

2.1 UNCERTAINTY IN PLANNING

In contexts of high uncertainty, though, the expectation of entirely predictable outcomes is often questionable. It is exactly in settings where levels of uncertainty are higher that we tend to speak of “failed planning”, or “unruly” or “uncontrolled” development.

Urban planners tend to underestimate the importance uncertainty plays in the evolution of the planning context (Christensen, 1999), be it due to the difficulty in isolating and identifying factors of uncertainty or because of the increased levels of complexity added to the planning process by uncertainty.

Unlike other concepts in urban planning, uncertainty has been somewhat difficult to clearly define. We think its useful to draw from a couple of notions: according to Keynes (1937), it is equated to the impossibility of defining the relative probability of a certain outcome being achieved as a consequence of one’s choices; Mack (1971) introduces uncertainty as complementary to knowledge, the gap between what

is known and what needs to be known in making correct decisions; Abbot (2005) is “a perceived lack of knowledge, by an individual or group, that is relevant to the purpose or action being undertaken.”

Some factors commonly identified as having a great influence over the level of uncertainty in the planning process are: i) context; ii) time frame; iii) assumptions; iv) complexity. Besides these factors, uncertainty can also be triggered by events of uncertainty. Simply put, an uncertainty can be triggered by events generated within the planning process itself or by changes to the planning context. Abott (2005) reinforces this notion, distinguishing between process uncertainty (or uncertainty in planning) and context uncertainty (or uncertainty to planning).

2.2 ELEMENTS OF AN AGILE AND PROACTIVE PLANNING FRAMEWORK

As a response to the shortcomings of traditional planning, including its inability to adequately address uncertainty, several solutions have been proposed that allow the plan to remain as suited as possible to an evolving planning context.

Flexible planning proponents (Rosenhead 1980, Friedman 1997, Allen 2003, Desfor and Jorgensen 2004) highlight the benefits of quickly adjusting the solution to suit new challenges or changes to the planning context; Adaptive planning (Cooper et al 1971, Kartez 1987, Lessard 1998, Holling et al 2001, Kato and Ahern 2008, Crawford and Davoudi 2009), which has seen strong support as a necessary adjustment to planning as response to climate change, similarly presupposes that the planning exercise is capable of adjusting to changes in the context without compromising overarching objectives, or that it is capable of reformulating those objectives accordingly in a timely fashion; Collaborative planning (Christensen 1985, Healey 1998, Innes 1999, Camacho 2005, Saavedra and Budd 2009) highlights the importance of stakeholder involvement from the early stages of planning, both as a way of investing different interests in a common goal and by facilitating the incorporation of local or expert knowledge in the formulation stages.

It is clear to us that increasing the robustness/resilience of planning requires a reassessment of some of the pitfalls of traditional planning, namely its inability to readily cope with uncertainty, and that the elements proposed by flexible, adaptive, scenario, and collaborative planning are all valid and useful starting points to generate a comprehensive model that could instill flexibility and agility to the planning practice, while not deviating so far outside the typical legal framework for land-use planning, so as to allow a relatively straight-forward adoption within existing planning limitations.

As a result, we propose an Agile/Pro-Active Planning Framework, that relies on a project management framework capable of incorporating a broadened set of actors/stakeholders, an iterative ongoing reassessment of the plan’s tasks and actions according to a continuous monitoring of the performance of key indicators, and thus allow a rapid readjustment of the plan to incorporated the latest knowledge and adjust readily to changes to the planning context.

We highlight ahead some elements that we consider relevant in setting up an agile and proactive planning framework.

2.2.1 PERFORMANCE

The more traditional conformity perspective of plan evaluation/ex post monitoring focuses on the evaluation of the adherence of the plan’s results to what was initially planned (intentions, objectives, goals…). The performance perspective, on the other hand, assumes that mere conformity is insufficient to evaluate a plan’s success. As uncertainty is an integral part of the planning process, what was planned for from the onset may become inadequate during the plan’s implementation. The plan is approached, under the performance perspective, as a framework for decision-making and its evaluation should be based on how (well) it is used, how it influences the decision-making, and also how those decisions affect the outcomes.

2.2.2 EFFICIENCY AND EFFECTIVENESS

The concept of performance, widely used in management, incorporates two essential concepts: that of efficiency and effectiveness. Drucker simplified the distinction between the concepts: “effectiveness is doing the right thing, efficiency is doing the thing right”. Effectiveness (“doing the right thing”) means using the best strategies and related actions to achieve a competitive advantage. In planning, this means achieving the set goals. Efficiency (“doing the thing right”), on the other hand, draws on the balance between outputs and inputs to the system, and is focused on the conclusion of a process resorting to the least amount of resources. While efficiency is entirely focused on the process, effectiveness is concentrated on the achievement of goals/objectives (Sudit 1996).

This raises the question of how to evaluate the plan’s performance and which tools to use in its evaluation.

2.2.3 PERFORMANCE EVALUATION

Performance evaluation is an important element in determining the level of success of a process. According to Neely et al. (1995), performance measurement is the quantification of the efficiency and effectiveness of an action. This narrow definition has been expanded by others, and Gates (1999), Otley (1999) and Ittner et al. (2003) think of performance evaluation as the assessment of the strategic performance that informs the strategies with the greatest potential in achieving the desired outcomes, (re)aligning process management (goal definition, decision-making…) with those objectives.

2.2.4 FLEXIBLE MANAGEMENT

Flexibility in the planning process renders both the plan and the planning process more adaptable and less restrictive, which may be paramount to their ability to react to, or even anticipate, changes to the planning context. According to this perspective, the flexible management of the plan presupposes rendering it with the capacity to resist fluctuations without disintegrating (Ascher 1998) that is, to instill it with the capacity to integrate and resolve uncertain or unpredictable situations, during its implementation stage.

According to Correia (1994) planning should always preserve a strategic stance, meaning that within a stable framework of objetives and guidelines, there should the capacity to inflect, shift or adjust the implementation of actions and tasks.

As a response to the dynamic nature of planning, the plan should be equipped with management mechanisms capable of rendering flexibility to the plan’s implementation. This dynamic can be related to either time or complexity. The flexibility conferred to the plan will only be successful if the essential element to inform the necessary adjustments –knowledge – is permanently up-to-date and available to planners and decision-makers. Knowledge, here, meaning the information systematically gathered through monitoring and evaluation of the planning procedures.

Howell et al. (2010) propose a project contingency framework (UC-Framework), which identifies three management models/styles: "plan driven", “problem structuring", and “agile". The first model, "plan driven", is framed within the traditional approach to project management, which suggests a project is composed of a set of activities that require programming and execution, according to a pre-set plan. The main objective is the achieving the goals within the prescribed timing, cost, and scope. It is most effective in low-uncertainty contexts. The second model, "problem structuring" is suited for contexts of high uncertainty, such as exploratory projects. In project management, this is acceptable for risk ventures or innovation, but it may be inadequate to deal with land-use planning contexts, where total failure is not an option. The third model, the “agile” model, from which we will derive some elements of our proposal, is especially adequate in contexts that express one or more of the following elements:

- The objectives of the project may have been ill-defined in the early stages;
- The process is highly iterative, and involves partial execution of targets, followed by a redefinition of these targets based on the feedback from the implementation.

In an ideal scenario, this constant reassessment during implementation would make the model independent from the level of uncertainty, but in actual planning practice, where a comprehensive and robust plan is required, the level of flexibility is necessarily somewhat constrained and does not allow permanent reassessment.

Shenhar (2012) addresses, among others, the issue with how to adapt management in an “agile” framework to a specific context. He links this with the necessity of instilling the strategic aspects of project management with operational concerns during implementation. The author develops the methodology so as to expand the dimensions of success, which include efficiency, but also results/outcomes and preparedness for the future. So as to achieve success in the project, Shenhar and Dvir (2007) advocate that we should accept the reality that virtually all projects go through shifts in their paths, accepting this is a normal situation to be dealt with, rather than an exception. They recommend therefore the adoption of a flexible approach to decision-making support and successive waves of planning, in coping with the idea that not everything can be planned for in advance.

To address unexpected events that result from the interaction between a project and its context, Soderholm (2008) posits that there are 3 important practices that may be adopted during an ongoing project implementation: re-opening, revision, and fine tuning. Re-opening of a project means to trigger the redefinition of activities, timelines and costs, yet maintaining the integrity of the project (same general objectives established from the onset) in spite of significant changes.

One of the recurring ideas in project management is that a project requires “programming”, that is, it is expected that the preparation of the project in its early stages sets up the conditions for it to achieve its goals. Yet, in projects with long timeframes, such as land-use plans, it is virtually unavoidable that there be changes to the activities and resources, resulting from changes to the context. Once the need to alter actions and specific objectives becomes too extensive, a revision might be required. We highlight here that, if one takes for granted that changes to the context will indeed occur, the main factor influencing the continued adequateness of the plan to the context is its ability (or inability) to adjust actions and specific objectives while preserving the main strategy/goals as viable and desirable. The ability to cope with change and still thrive is a possible definition of a resilient plan, which is a major objective of our proposal.

3 A SOLUTION: AGILE AND PRO-ACTIVE PLANNING FRAMEWORK

3.1 WHY GO FOR AN AGILE/PRO-ACTIVE SOLUTION

This alternative planning framework builds on a number of earlier sources on adaptive and flexible planning, and is aimed at greater applicability from a practitioner's perspective. It focuses on the success of the process, and not in achieving a static outcome. It requires a continuous questioning of whether the initial goals are (still) achievable. At any point, the "trajectory" can be adjusted, as long as the adjustment is supported by results of an ongoing performance assessment.

The framework presumes that there is no single, perfect solution to a/the problem, but a number of solutions that can be applied, abandoned or combined throughout the process, as long as they are still beneficial in adjusting the trajectory so as to best achieve the desired outcomes. For this to work, the plan should be seen as a combination of document, process, and a platform facilitating stakeholder interaction.

A first step is to build a roadmap, setting out major goals/objectives that the plan should/must achieve as a measure of success. The outline of this roadmap should be clear, well-structured, simple, and focused on establishing clear measures of performance, rather than static solutions. The process management should be agile/flexible and quick to adapt to changes to the system, or when monitoring identifies a divergence that may compromise the plan's overall success.

As well as a decision-support tool, developed in close interaction with decision-makers and coordinating planning staff, the plan should also include/set out a platform for participation, where frequent meetings between stakeholders (naturally including individual citizens and NGOs), scientists, and planners can inform, help improve, and allow cross-breeding of solutions implemented by multiple actors.

3.2 ELEMENTS OF AN AGILE/PRO-ACTIVE SOLUTION

Our model is based on an iterative interaction between stakeholders and an evolving knowledge base, through which the planning process advances and quickly responds to changes to the planning context by way of an agile management of tasks and actions, through the ongoing performance assessment of state

indicators. It therefore centers on a pro-active stance to quickly address the plan's divergence from the original path, allowing a quick reassessment and incorporation of corrective solutions.

It is comprised of three major elements: a Knowledge structure, where information, expertise and policy are kept permanently updated and available; a Platform promoting formal and informal communication and knowledge exchange among decision-makers, stakeholders, and experts; and the planning Process, which is the "swivel joint" through which the interactions between the Platform and the Knowledge base feed off each other, promoting the early readjustment and evolution of the planning process.

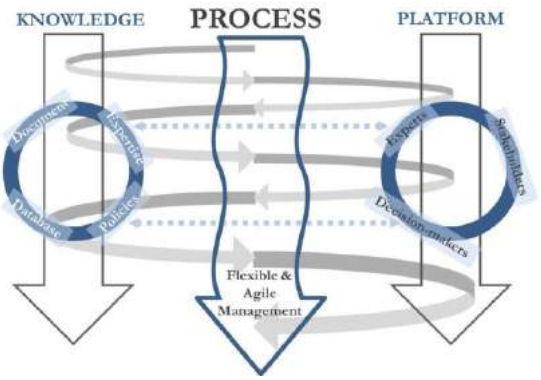

Figure 1 – An Agile/Pro-active Planning Framework

3.2.1 KNOWLEDGE

The element Knowledge consists on a repository of all the permanently updated information, necessary to inform the planning process and its stakeholders. It must be able to respond to the dynamic and solicitations of the planning process.

We perceive this Knowledge element as multi-faceted, and composed of distinct components, namely: database, document, expertise, policies.

Database is the interface over which the contents of all the knowledge components (document, expertise, policies) are stored and accessed. The technology available for data storage and processing has greatly developed in the last few decades, and this resource is yet to be fully explored by planning. Planning Support Systems (PSS) have been affirmed as a possible solution, based typically on web-GIS platforms that allow for a flexible and dynamic knowledge exchange platform. Yet, more traditional historic archives (now mostly digital) storing the full backlog of the process, should not be foregone, as they are essential to retrace past decisions or events, and their consequences to the planning process. The combination of both, as well as insuring the continuity in the team tasked with information archival and its exchange, is essential to ensure that past and current information and expertise is adequately stored and circulated among stakeholders and decision-makers.

The Document is the permanently-updated blueprint of all elements that are enacted at any given time. For the agile/proactive management of the process it is essential that the most up-to-date and comprehensive version of all documents is made widely available among decision-makers. These can be equated mostly to a repository of all the "decisions" already produced by the planning structure, and must be widely-known and accessible to all actors so that the ongoing decision-making process remains updated and informed. It should emphasize especially the elements of the plan's programming that are active or have already been decided at any given time, such as the Strategy, Objectives, Actions and Tasks.

Expertise comprises all the contributions by experts, as well as the sectoral documents, that inform the decision-making. These include the latest available solutions or findings from the scientific community, but also inputs from local actors about specific local issues (local knowledge) and technical maps/reports from public institutions (census data, geological maps, infrastructure networks…).

Policies are the outputs of the ongoing interaction between stakeholders, experts and decision-makers. Decision-makers are ultimately those responsible for deciding which policies are to be transposed onto document. Some policies may be left out of the document because they are unsuited to the overall

strategy/objectives, while others may remain “in the backburner” until they become feasible/adequate to be incorporated onto the document.

3.2.2 PLATFORM

The Platform is the forum, the “space of dialog” for interaction between decision-makers, experts, and stakeholders. It should be designed to promote easy and frank bilateral or multilateral communication among actors, and be composed of both formal/scheduled instances of interaction (meetings) but also encourage more frequent, informal, contact among two or more actors.

We distinguish three main types of actors, although it is possible for one person of group to be involved in the plan in more than one capacity:

Experts produce scientific knowledge as an input to the Plan, which may be incorporated into the knowledge database as expertise. It is a prime source of knowledge that should inform decision-making and ultimately influence the plan’s policies and documents.

Decision-makers are traditionally politicians, although planning should encourage collaborative decision-making whenever deemed appropriate, and planners can, and should, influence the decisions of politicians. The decision-makers are tasked with the ultimate decision to select which policies to enact or include in the plan’s document, and establishing or adjusting the plan’s programming accordingly (strategy, objectives, actions and tasks).

Stakeholders are all actors that hold a stake in the planning process, out of self-interest or because they are invested in a collective stake. We include here the general public (and especially local communities), NGOs, and private stakeholders such as corporations, investors or private landowners. Public agencies often hold significant stakes in the planning process, because of their mandates or as landowners.

Stakeholder involvement is fundamental in promoting the plan’s awareness and, even viability. From the planner standpoint, encouraging the collaboration of stakeholders in the decision-making process can allow the adjustment of solutions so as to promote receptivity to the plan’s document, but also, ideally, result in inputs to the knowledge database deriving, for example, from local expertise. The involvement of stakeholders from early on in the process will also increase the chances of the plan’s implementation being well received and, thus, the plan’s success.

3.2.3 PROCESS

Whereas Knowledge and Platform are “static” structures for any given moment in time, even if capable of permanent adjustments, Process is the set of elements and structures that promote the dynamic interaction between elements of knowledge and the platform. It is the Process that promotes the discussion of planning solutions, between stakeholders, experts, and decision-makers with the aim of transferring their inputs from the Platform onto the Plan’s Knowledge Database, as policies, expertise, or, ultimately, document. These elements of the Knowledge Database, in return, feedback to the Platform, where actors will process new information in order to promote the discussion of elements resulting from the plan’s implementation (monitoring).

The Process should, therefore, promote a dynamic assessment of the plan’s evolution: the latest knowledge in the database, deriving from monitoring, should influence new decisions, which in turn feed onto new policies, which may alter the plan’s programming (if needed), generating an updated knowledge database (the helix shown in Figure 1). This constant evolution is the basis of an agile (because of its flexibility and stakeholder involvement) and proactive (because of its ability to incorporate the latest knowledge) planning process.

3.3 APPLYING THE AGILE/PROACTIVE MODEL

The document, explained before, should be seen, at the plan's enactment, as the roadmap for the implementation of the agile/proactive model. After "programming" the initial roadmap, there is the need to articulate the findings (derived from monitoring the plan's implementation) and new knowledge (resulting from inputs from the platform) so they can feed back to the improvement of the document, promoting its "agile" updating whenever necessary.

While the initial programme should be as good and comprehensive as possible, it will be based on the set of information (database) available at the moment of its creation. It will include an assortment of tasks that are aimed at achieving the objectives and strategy (an "ideal trajectory"), but time is likely to introduce changes to planning context that make the original path unattainable. As a consequence, tasks need to be changed accordingly and the overall "trajectory" of the planning process may be compromised. This adjustment can be conducted in an expedite and timely fashion (pro-actively), as soon as the divergence from the desired path is detected (Figure 2). Acting early to correct the trajectory may allow alternative actions or tasks to be implemented that will still allow the general strategy to remain robust, while minimizing the divergence from the original "targets". Unfortunately, as is more often the case, it is only once a plan's strategy or objectives come under jeopardy that action is taken (a reactive stance). This delay in addressing the issue may entail an extensive revision of the plan's formulation, and by then the achievement of the original targets may no longer be feasible.

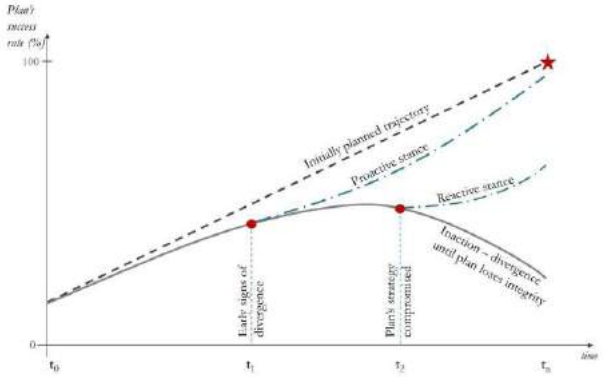

Figure 2 – Proactive and reactive stances in adjusting the plan to changes in the planning context

Our model is based on a performance and context assessment, and we propose that the level of disruption introduced to the system may be minimized by: 1) the permanent updating, completing and recirculating of all the information stored in the database, and 2) by selecting an adequate tool for the analysis of the most recent information, so that decision-makers are able to adjust the "trajectory" in an agile manner.

For the first issue, we believe that the use of Key Performance Indicators (KPI) can be useful in that it is a reasonably well known methodology that is compatible with most planning structures and does not require any major adaptation to the legal framework for planning in order to be implemented. The careful selection of the KPI should be focused in creating an "early warning" system, that will be triggered once certain thresholds, that may compromise the plan's integrity, are surpassed.

Therefore, the indicators should be oriented to carefully portrait the level of "effectiveness" of the proposed courses of action and well time-delimited. It should be triggered whenever a task or objective is underperforming, and significant deviation from the planned target should inform corrective measures. We propose the development of specific KPI for each task/action, centered on performance, complemented by compound indicators of effectiveness for the objectives centered mainly on results.

It is from the interpretation, by planners and decision-makers, of the results of the KPI's permanent monitoring at the moment t that the information on the plan's ongoing performance is derived, and input to the database. In case some significant performance issues are identified, a partial correction of the "trajectory" should then be considered in as early as possible (t'), so as to minimize the risk of mid- to long-term failure of the planning exercise (Figure 2).

The second issue highlighted is the selection of an adequate tool for the analysis of this most recent information, as a decision-support tool that facilitates the adjustment of the plan's "trajectory" at the project management level. This management should not be focused exclusively on the results of the performance assessment, but also on the input of the stakeholders, experts and decision-makers resulting from the interpretation of the outcomes of that assessment. With that in mind, we propose the use of a Balanced Scorecard (BSC) or similar methodology that can facilitate each actor's interpretation of the results and promote a weighing of alternative solutions on how to address the underperformance and possible corrections to the plan.

For the KPI assessment and the interaction with the Platform (the actors) to be successful, it is important that a clear "strategic map" of all the actions and respective indicators be kept updated at all times, highlighting both the expected outcomes of each task, but also the indication of how each task is linked to, and is expected to affect, the achievement of its respective Action, and how the set of actions would promote the achievement of their Objective.

Ideally, a KPI would trigger an "alert" that a certain task was underperforming in a timely fashion, allowing the correction of that specific task without compromising the integrity of the plan. This would be a major aspect in promoting an "agile/proactive" plan, as it would be able to quickly respond to changes to the context, while preserving its overall objectives and strategy intact (Figure 3). Only in case of a task being compromised would a revision of the action be required, and so forth.

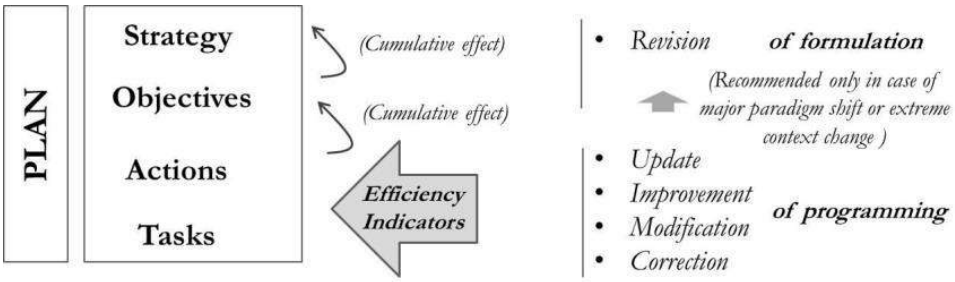

Figure 3 – Efficiency indicators trigger early warnings, promoting the frequent adjustment of the plan's programming (tasks and actions) without compromising the plan's formulation.

If adequately implemented, this strategy would keep a plan's overall strategy viable and up-to-date in face of significant disturbance to the planning context., only requiring full revision in case of a major shift in planning paradigms or deep changes to the legal framework (Figure 4), that is, events capable of triggering alerts on the performance of effectiveness indicators. These exceptional events would then provoke a redefinition of the plan's formulation, including the overall strategy, and the reassessment of objectives, actions and tasks.

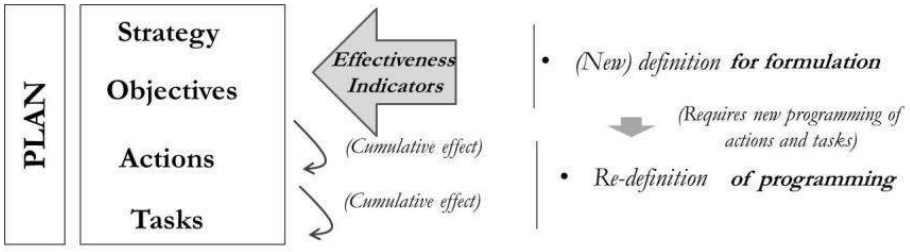

Figure 4 – Only in the event of an unpredictable shift in paradigm or deep change to the planning context, triggering alerts on the performance of effectiveness indicators, would a redefinition of the Plan's formulation be required.

Efficiency indicators, being linked to actions and tasks (Figure 3), are fundamental in triggering alerts once they underperform. These alerts are early warnings that problems in the execution of the process are occurring, such as insufficient resources, inadequate timing, or problems with their implementation. Since we are within the domain of process, it is the strategic map of actions and tasks that should serve as a reference and be tweaked so as to adjust the plan to the new challenges. These changes should be

produced swiftly, and adjusting them appropriately will avoid the need to revise the formulation (strategy and objectives).

In a well-formulated plan, the effectiveness indicators (Figure 4) should be designed so as to be triggered only by events which could compromise the integrity of the plan's formulation, such as significant and unavoidable changes to the planning context, or major unforeseeable events (natural disasters, deep economic depression…) that would require a complete revision of the objectives and strategy. Once that revision is started, a reassessment of the actions and tasks would ensue.

3.4 SEA-LEVEL RISE: MANAGING THE UNMANAGEABLE

We take planning in the context of accelerating sea-level rise (SLR) as a case-study for the application of our model. SLR introduces a new dimension of variability which is yet to be adequately addressed by planning theory and, especially, practice. With Sea-level rise (SLR), land-use planning faces a challenge: in that it is not necessarily the planning practice that is failing to adequately predict changes to its planning context (at least, not according to its traditional standards), but rather that the "uncontrolled variable" (SLR) is too unpredictable or too untamable to allow traditional planning, or even scenario planning, to closely predict/adapt to it. This phenomenon cannot be planned-out or zoned-out (unlike most man-made uses or activities), it will occur regardless of any decisions taken at the local level, and represents a threat to most coastal urban settings, as infrastructure and urban development were not designed to face it.

The traditional stance towards SLR adaptation, and indeed most natural hazards, has been a Reactive stance: adopting reactive measures to deal with impacts already being experienced by the system. It often relies on the vulnerabilities of the system being revealed by events through the failure, or near-failure of the system as a whole or in some of its aspects (reactive adaptation over a vulnerable system);

More recently, though there is increasing pressure to instill planning with a pro-active stance (): early adoption of pro-active measures, which attempt to anticipate future impacts and mitigate them by increasing the system's resilience ("readiness") so as to withstand SLR without losing fundamental capabilities to perform up to an acceptable standard (proactive adaptation for a resilient system).

The level of uncertainty SLR introduces to the planning context render planning with SLR a perfect example where we believe the adoption of an agile/proactive model of planning would be ideally suited.

Lempert (2000) states brilliantly the sort of questions planners are faced with regarding SLR:

> *The key step in solving a complex problem is often asking the right question. Prediction-based policy analysis requires that we ask 'what is likely to happen in the future?' We believe that the proper question is 'what actions should we take, given that we cannot predict the future?' The answer we propose is that society should seek strategies that are robust against a wide range of plausible climate change futures. By definition, robust strategies are insensitive to uncertainty about the future. For risk-averse policy-makers, such strategies would perform reasonably well, at least compared to the alternatives, even if confronted with surprises or catastrophes. Robust strategies may also provide a more solid basis for consensus on political action among stakeholders with different views of the future, because it would provide reasonable outcomes no matter whose view proved correct. Clearly, robust strategies are desirable. The question is, do such strategies exist and, if so, do we have the means to find and assess them?*

3.4.1 APPLYING THE AGILE/PRO-ACTIVE MODEL TO PLANNING WITH SLR

Our model addresses several of these issues specific to planning with SLR:

1. By incorporating in the Plan's database information that is kept "on the backburner", that is, expertise and policies that are not a part of the document at a given time, but that may be introduced to it readily in case of a shift to the planning context, we increase the ease of quickly adjusting the plan to that new reality, while preserving its integrity. A perfect example of this

would be a solution for sea-level rise adaptation, such as the relocation of a neighborhood, which would be prepared in advance but that, due to its cost, would only be enacted into the plan after a certain threshold of SLR was surpassed. Having prepared for that scenario in advance, would allow experts and local stakeholders to debate the merits of alternative solutions and possibly reach new ones that may be beneficial to more actors (Birkmann 2010). Also, having been the subject of ample debate by the time of their adoption, these solutions would likely be met with greater receptiveness, when compared with reactive, hasty, decisions. The ease of implementing the necessary tasks would therefore be much facilitated and the plan's overall robustness much improved;

2. As our framework presupposes the establishment of formal and informal communication channels among actors in the platform (including experts and decision-makers), this would allow the plan to be constantly instilled with the best and most up-to-date science and adaptation solutions, allowing for an improved and speedy consideration of new data or technology;
3. The timeframes for adaptation are very long (Hallegatte 2009), and not compatible with the typical political cycles (Wilson 2007). Therefore, strategic adaptive strategies require stable planning frameworks, capable of generating multi-year, or indeed multi-generational, commitment to a certain strategy. By "shielding" the Strategy as the stable consensus that is unlikely to require revision unless there is a major paradigm shift, our model proposes that reassessment based on KPI be mostly confined to the adjustment of tasks, without compromising the overarching strategy of the Plan. It is therefore well-suited to implement long- to very long-term strategies such as climate adaptation;
4. The model addresses another major problem with climate adaptation: most solutions being advanced for dealing with SLR in urbanized waterfronts are far from consensual, whether because they demand hard land-use planning choices to be made, because they are not economically feasible, or simply because they are controversial. Also, one stakeholder's dream solution may be another one's worst nightmare (for instance, phased withdrawal or large seawalls). By emphasizing the importance of the Platform in establishing frank and open communication among actors, and allowing the timely debate of solution before they are enacted in the Document, our model allows tough solutions to be matured through debate before being implemented.
5. Implementing a proactive approach to planning requires the recognition that uncertainty and complexity are inherent to the planning process, as our model explicitly does. Planning for a specific goal or threshold can prove inadequate in case real trends fall outside the estimates, unless a certain degree of flexibility is preserved and instilled onto the adopted solutions.

Since most adaptive planning solutions tend to fall into the category of hard (and unpopular) decisions, which are precisely those that tend to get more readily removed from plans by decision-makers, they are also especially unsuited for the traditional planning style, which tends to follow closely the political cycles (Wilson 2007) and therefore neither have the time, nor the interest, of introducing these unpopular measures, except in a reactive stance to an already occurring phenomenon (such as the aftermath of a natural disaster).

Our model, falling well within the scope of the flexible, adaptive planning models, promotes pro-active stances, where future disruption is addressed in a timely fashion, by slowly circulating among the actors in the Platform before the tasks are finalized, while the overarching objectives and strategies of adaptation can be established as integral to the Plan for its earliest iteration. This would allow the solutions to be matured as a component of the Plan over a few political cycles, even if the specific tasks remain in discussion, therefore distributing the burden of "hard choices" over a large number of decision-makers and political cycles.

Although one can hardly manage for uncertainty, it is possible to manage for the risks that uncertainty may introduce to the plan's integrity. This can be achieved through thoughtful strategy and goal-setting, by allowing for ready and effective revision, complemented by a clear definition of the actions necessary to preclude failure or achieve improvements, and a constant updating of the planning framework with revision of the tasks' performance and possible revision of actions and objectives, within a stable and long-term strategy. This is a radical departure from the static planning framework of recent, where the "plan" as a product is the ultimate goal of the planning practice, regardless of how well it responds to the solicitations of the planning context itself.

4 CONCLUSIONS

Current planning structures tend to deal poorly with uncertainty and variability. This is especially evident in planning with SLR, where the level of uncertainty is vastly increased by an uncontrollable variable. In traditional planning structures, the typical revision occurs after a certain static scenario collapses, and therefore a new scenario for the end-result of the planning process is “required”. These are all “static” scenarios, which get redesigned over time in reaction to the plan’s underperformance. By then, typically a full revision of the Plan is required, and adaptation to changes to the planning context are slow and, typically, not very effective.

Our model builds on theories of flexible and agile project management and flexible, adaptive and collaborative planning to create an agile/pro-active planning framework, which may address more adequately the high level of uncertainty present in today’s planning contexts.

By taking uncertainty as a given, and not an unexpected event, the model accepts readily the need for speedy and easy adjustments according to early signs of underperformance, provided by indicators. The permanent monitoring of the plan’s implementation should track its performance in pursuing the strategy and objectives, and whether the selected actions and tasks are being successfully executed. The open channels of communication among experts, stakeholders and decision-makers would process the new information and produce or revise tasks and actions so as to allow the plan’s overall performance and strategies to remain valid over a changing planning context. By acting readily and pro-actively, the plan’s “trajectory” may be corrected early on, avoiding the collapse of the overarching objectives.

Our vision is therefore that planning should be inherently dynamic and pro-active, and that it should recognize the uncertainty of the planning context from the onset. This uncertainty should be dealt with by increasing the plan’s resilience, and this can be achieved by broadening the range of solutions by involving experts and local stakeholders in a constant strive to gather the latest, best, knowledge and making it readily available to decision-makers. Another aspect we highlight is the possibility of reserving some solutions “in the backburner”, as policies that may be incorporated at a later date or a given indicator crosses a certain threshold.

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ID 1610 | THE NEW "PLANNING AMNESTY" IN PORTUGAL: HOW FAR SHOULD PLANS ACCOMMODATE NONCOMPLIANT DEVELOPMENT?

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1 INTRODUCTION

In 2014, Portugal introduced legislation[1] imposing amendments on statutory plans to accommodate illegal structures "that are incompatible with land management instruments or land use restrictions" applied to productive units such as industrial, farming, waste management and quarries. The initial deadline for application was January 2016, but was extended until June 2017[2]. This amendment also introduced "subtle" changes, to include buildings in which construction had not been finished, and some types of warehouses. The pressure for a solution to illegal development arose from restrictions on real-estate transactions and conditions placed by the EU on eligibility for its funding mechanisms. Though not

[1] Decree-Law 165/2014, from November 5.
[2] Law 21/2016, from July 19.