

Computer Aided Strategic Planning, Strategic Planning, Architecture, Controls & Education (SPACE)

ePlanner Overview

Executive Summary

ICT (Information and Communication Technology) services have resulted in tremendous economic development, improvements in quality of life, and operational efficiencies around the globe. However, 50-80% of these initiatives fail due to re-invention of the wheel, especially in developing countries and the underserved sectors of the developed countries (e.g., local governments and small to medium businesses). Best practices for success are well known but the main challenges are:

- How to make the knowledge available quickly, economically and universally
- How to do more (i.e., more services to more users) with less (i.e., less time, less failures, less staff).
- How to transform knowledge of best practices into *actual* practices where the knowledge is used routinely in daily practices.

SPACE (Strategic Planning, Architecture, Controls, & Education), is an intelligent decision support environment that has been developed to address these challenges. SPACE is a one Stop Shop that covers the entire Learn-Plan-Do-Check cycle instead of one activity.

1. The SPACE Environment – A Quick Tour

A user of the Planner selects a service (e.g., mobile health clinic) for a given country (e.g., Nigeria) and quickly generates the following reports (see Exhibit 1 for more details about these reports):

- Business plans that can be used for obtaining funding
- Detailed Planning Reports (DPRs) that show the architecture, the needed policies, and enabling technologies for the chosen service
- Standardized RFPs (Requests for Proposals) that can be used to attract the needed vendors through an open bidding process
- Project management, disaster recovery and governance guidelines for monitoring and controlling the development activities
- Education, training and public awareness campaigns needed for success

Let us briefly review how these outputs are produced by using Figure 1 which shows a more detailed view of the Planner. *Simply stated, the Planner is a set of intelligent apps (“advisors”) that are integrated around common resources.* These advisors collaborate with each other to cover five phases (P0 to P4), shown in Figure 1. These advisors invoke the games, patterns, and other resources to generate the outputs shown in Figure 1. These outputs can be further customized by local experts and/or end users. Suppose that a user wants to develop the strategic plan for an eLearning service in Nigeria. P0 helps the user to capture Nigeria specific information and P1 helps in specification of the eLearning service. P2 generates a customized plan based on P0 and P1. P3 generates the information for RFP and requirements & integration. P4 generates outputs to support project management and governance. The outputs produced can be further customized by the users or local experts manually or by invoking specialized games and simulations. Our goal is to produce the outputs that require less than 30% of local modifications.

Using Big Data: The Planner fetches, uses and customizes extensive Big Data resources such as a set of Knowledge Repositories that provide links to a wide range of case studies and educational materials, and External Resources such as the UN Public Administration Network (UNPAN), World Economic Forum (WEF), and World Bank Institute initiative on Open Data. Rules in different phases of the Planner retrieve needed data and use it to produce outputs and/or modify decisions.

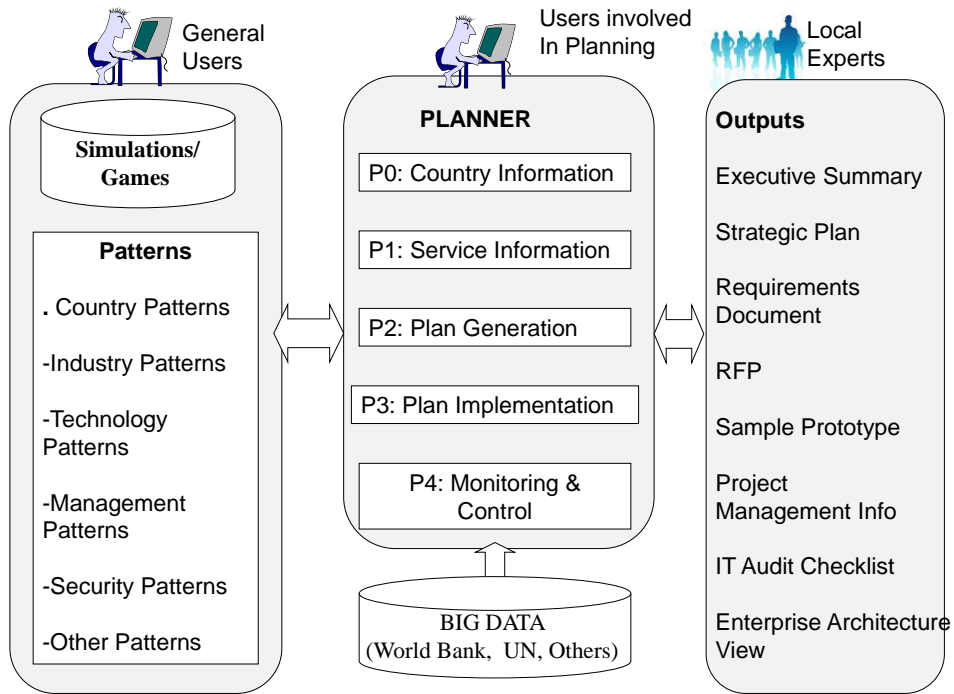
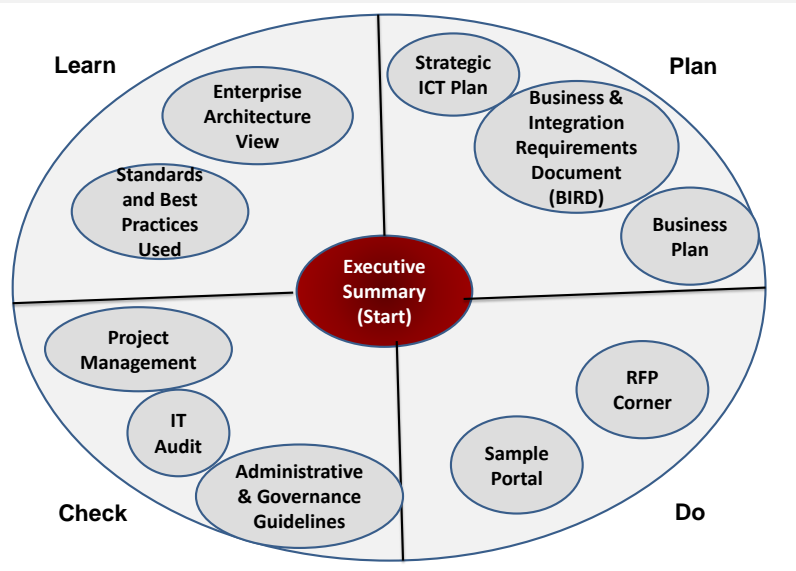


Figure 1: A More Detailed View of SPACE

Exhibit 1: The Outputs Produced by the Planner -- The Checklist

A user of the SPACE Environment selects a service (e.g., mobile health clinic) for a given country (e.g., Nepal) and generates the following outputs:

- Strategic Planning Report that shows the overall vision and architecture with business/technical justification
- Requirements documents for system development
- Business plans that can be used to obtaining funding
- Standardized RFPs (Requests for Proposals) that can be used to attract vendors for bidding
- Project management, policies and procedures, disaster recovery and needed governance guidelines
- Education, training and public awareness campaigns needed for success
- Enterprise architecture (EA) views for overall governance
- Suggested standards and best practices



These outputs, displayed graphically below, cover the entire Learn-Plan-Do-Check cycle, are produced *in less than an hour (it takes almost a year to produce similar outputs manually)*.

As indicated by Gawande [28] in his best selling book “The Checklist Manifesto: How to Get Things Right”, a checklist is a very powerful tool for successful execution of projects. The information contained in these reports can serve as a massive checklist that can help the users to succeed.

3. An Example – Using a Systematic Methodology

Figure 2 shows a conceptual view of the SPACE methodology that systematically guides the users through different phases of the Plan-Do-Check cycle for given eservices. This figure illustrates the flow of planning phases P0 (initialization), P1 (information gathering), P2 (strategic planning), P3 (detailed planning), and P4 (monitoring and control). The first two phases (P0 and P1) capture country and service specific information. Phase 2 generates a customized plan based on P0 and P1. P3 supports execution of the plan and phase P4 supports monitoring and control with heavy emphasis on project management and quality controls. Big Data, business patterns and intelligent rules are used in all phases of this methodology. Given a strategic project (or an initiative), this methodology identifies the main alternatives, the key business/technical issues involved in each alternative, and helps in evaluation and selection of the most viable alternatives *before* initiating the project. The methodology shown in Figure 2 can be used manually. SPACE provides computer aided support in all phases of this methodology and can produce results within an hour instead of months. It also offers many additional benefits such as the following:

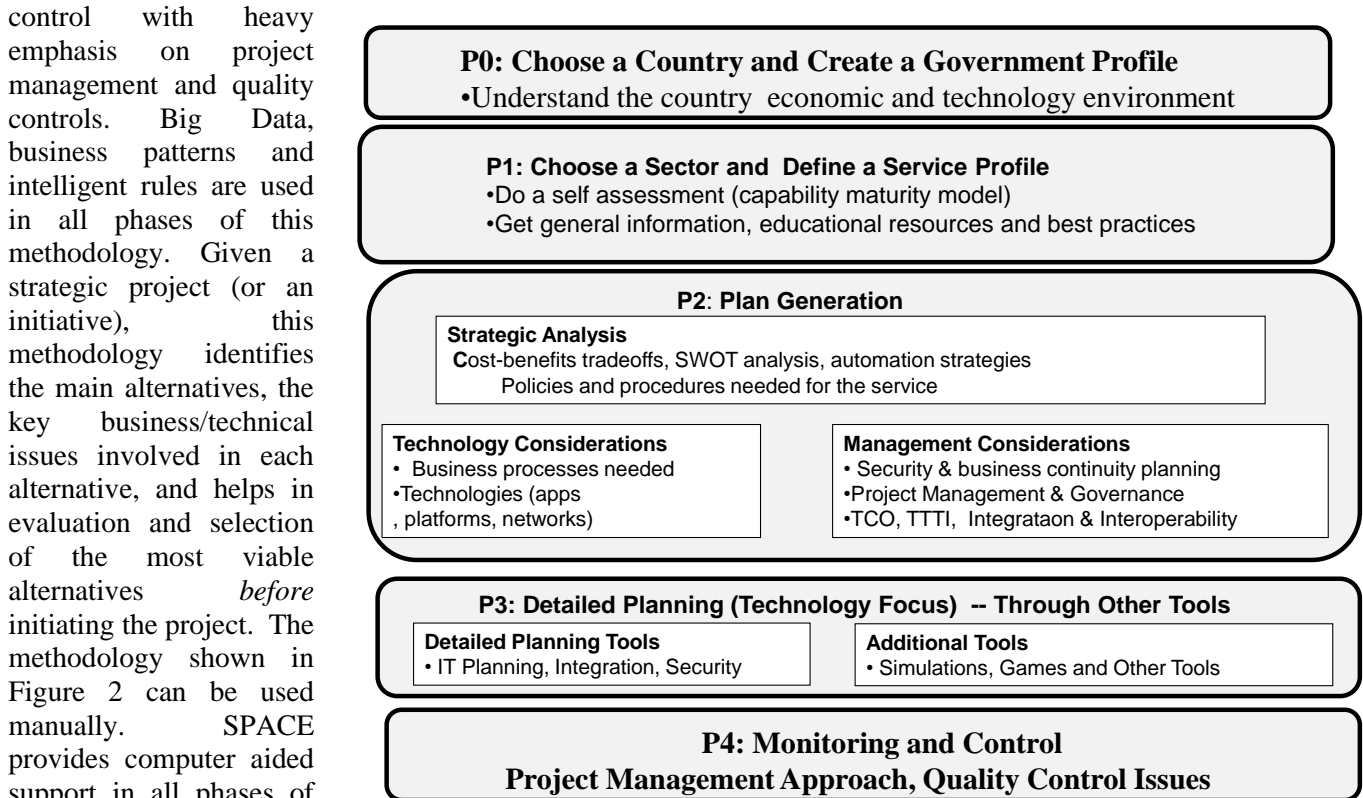


Figure 2: Systematic Methodology Used by the SPACE Planner

also offers many additional benefits such as the following:

- hide technical details and thus can be used by people with different backgrounds
- introduce and enforce the same standards and best practices quickly and uniformly across all users
- be accessed by people living anywhere and thus level the playing field between developed and developing countries
- be used as a training and educational tool

How is the SPACE Planner actually used in practice? The following example illustrates the overall flow of the Planner to introduce an ICT-based *Disaster Management (DM)* service in a rural area. The purpose here is to help an agency widely provide DM services to its constituents. The following description shows the flow of the Planner, as displayed in Figure 2:

- In the P0 phase, the user chooses a country (e.g., Nigeria) or a region within a country. The Planner automatically fetches the most appropriate information about the country/region (e.g., population sizes, terrain, etc). This saves a tremendous amount of time and effort to the users.

- In the P1 phase, the user selects a service to be deployed (DM) and decides the types of technologies to be used for DM. SPACE consults Big Data to make sure if the needed technologies are available in the selected country/ region and gives warnings if the selected technologies are not available. SPACE then goes through self-assessment (i.e., need analysis) about the DM service and automatically accesses the general information, educational resources and best practices available from the UN, the World Bank, and other Big Data sources to help the self-assessment of DM service, say, in Nigeria.
- In the P2 phase, the user is led through strategic analysis (buy, rent, outsource) and cost-benefits tradeoffs associated with the DM service. The user is also guided through policies and procedures needed for the DM service.
- In the P3 Phase, the detailed planning environment can be developed through an extensive IT Planning, Integration, Security and Administration (PISA) tool, part of SPACE. Detailed IT plans can be developed easily by PISA for many sectors such as healthcare, manufacturing, education, telecommunications, retail, finance and others. The user may choose other simulations, games and decision support tools for detailed planning.
- In the P4 Phase, the progress of the project is monitored and controlled through project management techniques. In this phase, the quality of the results produced is evaluated by using the best practices in quality control.
- The final phase, not shown in Figure 3, displays the outputs produced in a well-organized manner and also produces a sample prototype that can be expanded by local experts into an actual working system.

This short example highlights the main flow of the planning environment. Best practices are being used in all phases of the Planner to introduce ICT services quickly and effectively in developing countries. Our goal is to go beyond the websites that contain marketing materials or portals that serve as document repositories with search capabilities. Instead, we aim to provide a comprehensive computer aided planning, engineering and management environment with the following distinguishing features:

- Step-by-step guidance based on best practices and standards
- Quick warnings, based on Big Data, help in needs analysis and self-assessment
- Automation of the planning steps through a family of intelligent tools
- Recommendation of solutions based on best practices as patterns (core knowledge that can be specialized and customized)
- A set of intelligent decision support tools that are integrated around a common knowledgebase, instead of yet another standalone and fragmented tool
- Games and simulations for experimentations and what-if analysis
- Remote planning support (anyone from anywhere can use this system)
- Solution of important but complex problems (e.g., strategic planning, system integration, disaster recovery) through a family of advisors

4. Additional Suggested Experiments:

SPACE capabilities can be used to handle diverse scenarios. Figure 3 shows four possible categories of simple to large and complex application scenarios in terms of services and service providers with short examples. A user may select an individual service or construct a service bundle. Based on the choices made, the ePlanner automatically walks the user through the most appropriate steps and then generates very powerful outputs. Thus the ePlanner adjusts its behavior based on the type of service selections. The categories of Scenarios (S1, S2, S3, S4) are explained in the four stages of the ePlanner Learning Corner.

Providers (Orgs, Owners)	Many	S3: Large - One Service by Several Providers - Example: Health Information Exchange, Entrepreneurship Center	S4: Extra Large - Many Services by Many Providers - Example: ICT4SIDS Global Center, International Tourism Centers
	One	S1: Simple - One Service by One Provider - Example: Mobile Health Clinic, Small Tourism Center, Weather Alert Service	S2 : Medium - Many Services by One Provider - Example: Digital Community Center, Healthcare Center, Smart Town
		One Services	Many (Bundles)

Figure 3: Application Categories--Simple to Extra Large