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# An approach to structuring and conducting workforce planning projects

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**Building on a study of quantitative and qualitative approaches to workforce planning, a structure and a set of steps are proposed for conducting workforce planning projects in organizations. This approach contemplates four styles of governance applicable to a workforce planning project and the combinations (centralized or decentralized) to be used in the process of reaching decisions in the various difference organizational units. Its structure also comprises the sequencing necessary for workforce planning, as well as the various elements that make up each of the steps. Lastly, its application leads to the systematic construction of an information base that can contribute to enhancing the assertiveness of workforce planning decision making.**

**Key words:** Workforce planning, approach, human resource.

## INTRODUCTION

According to Zaidi et al. (2010), it is an accepted fact that workforce is the most important resource for organizations. Hence workforce-related issues are a focus of investigation by researchers and management practitioners in the organizational context. Workforce planning studies are not new. Ever since Adam Smith (1723-1790) enunciated the logic of the division of labor, there can be said to have existed an explicit need to specify the number of people who should perform a given function. Taylor (2007), through scientific management and time and motion study, helped identify the time required to carry out activities. This identification made it possible – and, for some environments, still does – to measure average work effort and, consequently, to determine the number of workers necessary.

On a different approach to scientific management, Mayo (1933) and Roethlisberger and Dickson (1939) developed their work through the experiences of Hawthorne. The Human Relations Theory that derived from those experiences found that human factors influence performance of work and that, accordingly, the same number of people can produce quite different outcomes. Therefore, it would not be possible to estimate

accurately the number of professionals needed for work. In addition to that point of view, other contributions deriving from the experiences of Hawthorne included: i) motivational aspects ii) leadership; and iii) the work environment, among others.

Research on workforce planning has advanced over time. There is a significant number and diversity of models for scaling workforces (Anderson, 2004). The historical evolution of the forms and complexity of work has increased the difficulty of workforce planning (Shanon et al., 2007; Gresh et al., 2007; Cotten, 2007; Chakravarthy and Agnihotri, 2005). Accordingly, a number of factors influence determination of the number of people required to perform work.

Aspects such as i) multifunctionality, ii) activities planning, iii) knowledge and skills, iv) workforce diversity, v) cultural specificities, vi) balancing activities, vii) management of seasonal demand, viii) ways of measuring work, and ix) performance indicators and the managerial role may all influence workforce planning (Naveh et al., 2007; Page and Willey, 2007; Kurowski and Mills, 2006; Mathys and Burack, 1993; Henry and Evans, 2007; Okafor, 2012).

Given that brief contextualization, it can be seen that to a significant degree workforce planning is inherently complex and dynamic, in view of the numerous elements to be considered in the process, as well as their various

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interrelations and differing behaviors over time (Curson et al., 2010). Although there is wide-ranging discussion and broad acceptance of the basic principles guiding workforce planning, there is little scientific investigation to support this activity in organizations, or any homogeneous manner of conducting it (Harden and Fraher, 2010; Curson et al., 2010).

As a result, workforce planning becomes limited to solving immediate, ad hoc problems, instead of looking more to the medium and long term. The greater the short-term influence, the less effective the process tends to be in assuring organizations find personnel of greater quality and productivity. In view of the foregoing, the question motivating this study – “How does one get the right people, with the right skills, in the right places, at the right time” (Taylor, 2007) – continues latent.

This study intends to contribute to answering that question mainly by proposing a theoretical approach capable of addressing the relationship among the various factors that influence workforce planning and the level of concentration of such planning (whether it is centralized or decentralized). The complementary products presented relate to workforce planning approaches and tools; criteria for deciding appropriate approaches; macro levels of a workforce planning project governance model; and a template for reaching decisions on the model of governance.

Structured literature reviews spanning diverse areas of knowledge underpin the scope of the study's results, and made it possible to identify the components that inform the approach proposed here to developing and conducting workforce planning projects, as described in the next section.

Accordingly, the products of this study embody, in systematic form, important components that can contribute to improving the effectiveness with which organizations generally – and their human resource departments particularly – determine “the right people, with the right skills, in the right places, at the right time”.

## THEORETICAL FRAMEWORK

The National Academy of Public Administration (2000) defines workforce planning as “a systematic process for identifying the human capital required to meet organizational goals and developing strategies to meet these requirements”. In line with the idea of identifying the human capital required to meet the organization's goals, the National Aeronautics and Space Administration (2008) defines workforce planning as “a methodical process that helps an organization identify workforce gaps [or surpluses] and develop human capital strategies to meet organizational goals”.

In this respect, workforce planning can be vital to solving workforce problems: such as team learning and development (Khalaf and Rasli, 2011; Emmerichs et al.

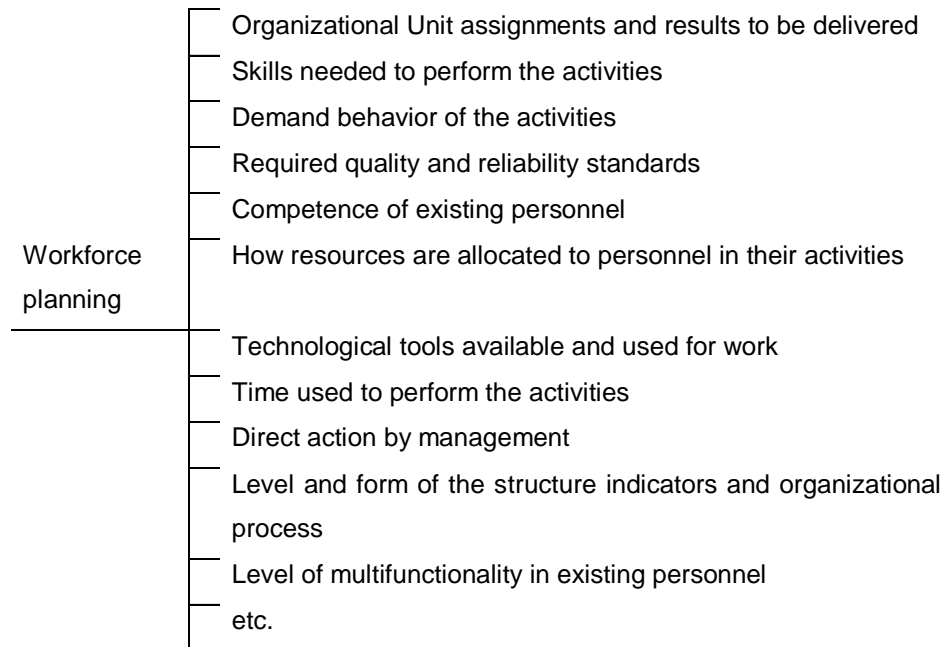
2004); the person-organization fit, that is, compatibility between individuals and organizational culture (Katrinli and Penbek, 2010; Nawab et al., 2011); level of empowerment (Emamgholizadeh et al., 2011); job satisfaction, and related impact on employee and organization's performance (Khan et al., 2012); reducing dangers of nervous fatigue in the workforce and making maximum use of workers' abilities and skills (Shahraki and Bakar, 2011), or even reducing costs. It can also help ensure quality in the delivery of services to be provided (United Kingdom Government, 2003; Forchheh and Fako, 2007), through employee commitment and service behavior, for example Dzansi and Dzansi (2010).

Some key issues in workforce planning are a) scaling, b) allocation, c) training and d) measurement (Stewart et al., 1994; Easton and Rossini, 1997; Parker et al., 1997; Bordoloi and Matsuo, 2001, Kathuria and Davis, 2001). These issues are not totally independent variables; on the contrary, they are strongly correlated. Workforce planning concerns are connected with the need to determine the number of personnel needed to perform a particular function in a given time period. Allocation, meanwhile, seeks to define the set of activities to be performed by each available workforce member. Training aims to provide technical support to the work of professional development, whether in knowledge or skills. Finally, measurement points to two central concerns: identifying the work effort necessary to carry out the activities and ascertaining the results obtained by performing the work.

As noted, these issues are significantly related. Depending on the level of workforce optimization achieved it will be possible to have a greater or lesser number of personnel (sizing). Distribution of worker skills (training) can yield multifunctionality that permits different forms of allocation and, consequently, influences – and can be influenced by – allocation and workforce planning. Measurement is central to sizing and appropriate allocation and can also guide training needs. Figure 1 summarizes linearly some elements that influence workforce planning.

The approaches used to address the different factors that influence workforce planning differ considerably. These approaches range from tools based on Operations Research (linear programming, computer simulation and constraint programming, for example), Statistics (ANOVA and correlation matrices, for example) and qualitative research (interviews, focus groups, Delphi Method and case studies, for example). This occurs because different units of measurement are used to calculate scaling in different situations, and conversion necessitates a full-time equivalent (FTE). FTE corresponds to the annual time (in minutes) that a worker has available according to the relevant contractual provisions (Kurowski and Mills, 2006).

Factors that determine the most appropriate techniques for correct scaling include: i) the nature of the activity



**Figure 1.** Some factors that influence workforce planning. Source: the authors (2010).

(operational, managerial, ad hoc), ii) the extent to which information and existing processes are structured, and iii) the time available for diagnosis, analysis and formulation of results.

Scaling methods can be grouped broadly into qualitative and quantitative approaches. Some cases require the complementarity between these approaches. Quantitative techniques are generally more appropriate in situations where information is more structured. Meanwhile, qualitative techniques are used for lack of the time necessary to structure information for use in a quantitative approach (Statistics or Operational Research).

Studies that use a qualitative approach include that of Shannon et al. (2007), Page and Willey (2007), Anderson (2004), Davenport et al. (2002), Lacerda et al. (2010), Lacerda et al. (2012), Morandi et al. (2013) and Mathys and Burack (1993). Such an approach generally seeks to establish parameters in terms of inputs and outputs. It also attempts to establish relations between growth – in either scale or scope – in the organization and in its activities. The assumption is that increased inputs will generate a proportional increase in outputs, which will require more resources in order to perform the activities. Obviously, this assumption is valid in more structured environments (with indicators, processes and tasks) and for more routine activities. As a rule, this direct relationship can be improved by process streamlining, allocations planning and other factors already mentioned.

The approach used by Shannon et al. (2007) will be presented briefly. In this qualitative approach there is an endeavor to develop consensual metrics to guide workforce allocation. Initially, a capability framework is

built with a view to answering two separate questions: i) What kind of work is undertaken? ii) What kinds of resources are needed to do this work? The framework is constructed qualitatively through in-person interviews. Table 1 shows the results of these interviews.

It must be stressed that some of these elements may be interconnected, that is, an increment in one of the resources may entail a need for increments in others – not necessarily in the same proportion. For example, induction of physicians may result in a need for more nurses and, consequently, an increase in administrative support personnel (Shannon et al., 2007).

Once the capability framework is developed, it has to be operationalized. Operationalization is achieved by constructing measurable indicators for the framework elements. Once inputs and outputs are measured, formulas (equations) are defined that connect results which are a function of inputs and outputs. Depending on the quantity of indicators, it may be necessary to reduce the number of variables to be considered. Accordingly, correlation analysis was used to examine the relationship between inputs and outputs. Regression analysis can also be used to check the influence of inputs on outputs.

The central focus of this approach is not on the statistical tools used, but on the process of developing and validating indicators of input and output. These metrics are used to compare among different hospitals in a region. However, they can be used to examine resource use over time by one organizational unit, in a longitudinal observation. The point to be noted is the construction and validation of the set of indicators to be measured, and the logic on which the formulas are

**Table 1.** Capabilities.

Input level		Output level	
<b>Medical workforce</b>	Current number and mix of medical staff	<b>Clinical services</b>	Direct clinical services (inpatient contact)
	Benchmarks and reviews Leave management		Clinical services (outpatients) Statewide service provision
<b>Other human resources</b>	Nurses, allied health professionals Patient administration, other staff	<b>Teaching</b>	Undergraduate Postgraduate/junior medical staff
	Departmental administration (business manager etc.) Teaching and research administration		<b>Research/professional development</b> Published papers Research projects
<b>Accommodation</b>	Individual workspaces Departmental meeting/gathering places	<b>Quality assurance/clinical audit</b>	Continuing medical education, conference attendance Peer review activities
	Bed numbers, theatres, special units (e.g. intensive care) and clinic space		Multidisciplinary patient conference meetings
<b>Equipment</b>	Administrative needs (e.g. computers) Clinical needs (e.g. microscopes, telemetry)	<b>Governance/administration</b>	Clinical audit, quality assurance activities Clinical indicators
	University support for teaching and research		Interaction between clinicians, departmental heads, managers Linkages across the state and nationally
<b>Organizational/work practices</b>	Patient flow/clinical mix Departmental structures		Policies, procedures and processes that support timely, efficient and effective administrative support for clinical practice (e.g. hospital committee structure)

Source: Shannon et al. (2007).

constructed to link inputs and outputs.

Page and Willey (2007) draw attention to the need for in-depth knowledge of the work to be done. Thus, at the outset of workforce planning, a clear diagnosis is made of exactly what the subject of the planning is to be. Another factor is the need for a succession plan in order to maintain service levels. As pointed by Farashah et al. (2011), "succession planning is no longer limited to top

managers; nowadays need to successor for every job in the organization is evident, specially with more involvement of employees to the organization and distribution of decision making to empowered employees across organizations".

Anderson (2004), Shannon et al. (2007) and National Aeronautics and Space Administration (2008) recommend an analysis of supply and demand.

**Table 2.** Adaptive strategies for workforce planning.

Strategy	Advantages	Disadvantages
Adjustment of workforce size/hours – hiring/firing, overtime/shortened work hours	- Inventory costs are kept low	- Labor turnover likely to increase - Low morale - Loss of skills - Unemployment taxes up - Potential EEO problems - Inefficiencies
Part-time or temporary help	- Reduces benefit costs - Maintains flexibility - Meets certain employee needs	- Requires “extra training” - Union contract may restrict use
Use of sub-contractors or out-sourcing	- Increases capacity - Maintains flexibility - Attention to critical activities	- Union contract may not allow loss of control
Phased and early retirement	- Frees positions for “younger” employees - Reduces labor overhead	- Pension cost increases - Loss of skilled employees
Shared services	- Reduces initial investment - Pools staff talent - Reduces permanent workforce commitment	- Loss of control/accountability - No clear line of authority

Source: Mathys and Burack (1993).

Supply analysis considers the workforce required and its allocation, namely the establishment of a work standard. Demand analysis will ascertain the necessary skills, new activities to be incorporated and the impacts of technology. For the organization's existing personnel to perform the work to be done entails closing the gap between existing skills (workforce skills analysis) and those necessary (job analysis).

There is constant pressure in organizations to reduce costs by workforce rationalization. Downsizing is one of the defensive strategies organizations can pursue to cut costs and make the organization more productive and profitable (Rehman and Naeem, 2012). Mathys and Burack (1993) analyze this issue extensively, and present strategies to reduce the workforce over time. In this light, the term “workforce” gains new meaning, no longer related strictly to the organization's own employees. In fact, the workforce comprises all the human resources that carry out the activities performed by the organization. Table 2 shows some of the strategies used.

In addition to the qualitative approaches, a series of quantitative techniques can be used. Quantitative approaches, however, call for further structuring of data/information. These approaches are generally based on a predefined list of activities to be performed (Naveh et al., 2007). On the one hand, the activity data should include some of the following (Naveh et al., 2007; Gresh et al.,

2007; Hu et al., 2007; Chakravarthy and Agnihotri, 2005; Easton and Rossini, 1997):

- Time needed for completion of activities (probabilistic or deterministic);
- Levels of priority for carrying out the activities;
- Resources required;
- Competencies (knowledge and skills) needed for each function;
- Demand for the activities being carried out;
- Costs associated with material and/or human resources.

Moreover, workforce data must also be structured and organized. Sometimes, it is necessary first to scale a database of activity processing times and, from this data set, workforce scaling and allocation can be performed. Accordingly, any information on the workforce that is to conduct the activities should have some of the following attributes (Naveh et al., 2007; Gresh et al., 2007; Hu et al., 2007; Chakravarthy and Agnihotri, 2005; Easton and Rossini, 1997):

- Times actually taken to carry out activities (probabilistic or deterministic);
- Productivity percentages for individual tasks;
- Resources required;
- Profile of existing competencies (knowledge and skills);

**Table 3.** List of attributes and data types.

Attributes	Example of data type
Job Role	Accounting system analyst, data administrator, solution designer (classification defined by IBM)
Existing skill	Technical editing, server consolidation, process in human resources (skills related to job functions).
Experience (1 ... 10)	Represents the worker's experience. At the highest level workers are better able to carry out their activities independently or to lead task.
Resource Type	Regular employee of IBM, subcontractor, joint venture company.
Global Resource Flag	Identifies whether the employee is located in (for provision), or allocated to (demand), or a country associated with low costs, such as China, India or Mexico.
Region	Latin America, Europe, Asia etc.
Country	Brazil, USA etc.
State or Province	Rio Grande do Sul, Rio de Janeiro, Santa Catarina, Paraná etc.
City	Rio de Janeiro, Porto Alegre, Cachoeirinha etc.
Industry	Manufacturing, media and entertainment, automotive etc.
Line of business	Strategic outsourcing, consulting, hosting services.

Source: translated and adapted from Naveh et al. (2007), Gresh et al. (2007) and Hu et al. (2007).

- Sequence of activities to be performed;
- Multifunctionality profile and others.

Several different mathematical techniques are applied to these two general databases. Gresh et al. (2007) developed an approach based on MRP (Material Requirement Planning) techniques to define the amount of resources needed. In this regard, applying to service provision the techniques employed in the manufacturing environment. For example, the Bill of Materials (BOM) used in the manufacturing environment (a list of materials needed to manufacture a product) has an equivalent which specifies the skills, level of experience and other requisites needed to perform the work and is used in planning human resource requirements.

The limitations of this approach should be recognized, however. One is that human resources are more flexible than equipment. This flexibility adds complexity to the modeling that will enable scaling and staffing (Gresh et al., 2007).

Statistical techniques, such as cluster analysis, are also used to identify job profile patterns (Hu et al., 2007). This type of analysis focuses on identifying common structures in the services in order to create a systematic method for providing workforce automatically and calculating requirements based on common characteristics. As described above, to make this possible, it was necessary for personnel to report, each week, the hours spent on each activity, on a time-sheet logic. To this end, GBS (Global Business Services) developed a database to describe their human resources (Naveh et al., 2007; Gresh et al., 2007; Hu et al., 2007). Table 3 lists the attributes of available human resources.

The activity to be performed specifies the skills required. For example, in a programming activity that needs a C++ programmer, that employee can be replaced by a JAVA programmer (Naveh et al., 2007). To the extent that the required level of accuracy rises, so does the complexity of detail and, consequently, the cost and time necessary to do the job.

Naveh et al. (2007) present another technique based on the same database to address the problem of workforce scaling and allocation. In this case, problem and solution modeling are performed by Constraints Programming. Naveh et al. (2007) refer to a number of previous studies showing the benefits of using this type of technique.

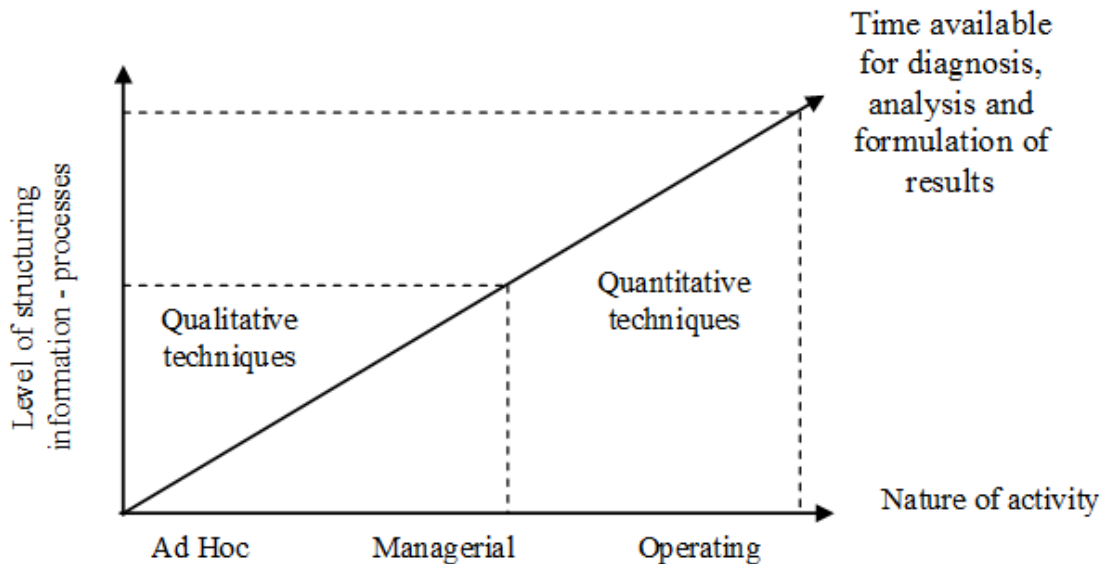
Algorithms (heuristics), linear programming and other mathematical models are also used to solve problems of workforce sizing and allocation (Stewart et al., 1994; Easton and Rossini, 1997; Bordoloi and Matsuo, 2001). Regardless of the technique used, there is clearly a need for structured information and for time to apply the quantitative techniques and analyze the results. Also the reliability of the information is key to the quantitative techniques. In this regard, quantitative methods may not be the most appropriate approach, depending on conditions affecting the structuring of data and information. Application of this type of approach may entail the unnecessary cost of collecting and systematizing information that may not contribute objectively to decision making. Table 4 summarizes some possible approaches and related tools.

Some criteria can be proposed to guide the choice of an appropriate workforce planning approach. That decision provides the basis for choosing the most appro-

**Table 4.** Workforce planning approaches and tools.

Approach	Tools
<b>Quantitative</b>	<ul style="list-style-type: none"> <li>- Linear Programming</li> <li>- Computer Simulation</li> <li>- Constraint Programming</li> <li>- Analysis of Variance</li> </ul>
<b>Qualitative</b>	<ul style="list-style-type: none"> <li>- Correlation Matrices</li> <li>- Regression Analysis</li> <li>- System Dynamics</li> <li>- Case Studies</li> <li>- Benchmarking</li> <li>- Comparative extrapolation</li> </ul>

Source: the authors (2012).



**Figure 2.** Criteria for deciding appropriate approaches. Source: the authors (2010).

appropriate tool or combination of tools. In Figure 2 the criteria that can guide decisions on choice of approach are framed in terms of three axes.

As can be seen in Figure 2 the choice of approach is based on three axes of the decision: i) the nature of the activity, ii) to what level data / information / processes are structured, and iii) the time available for the project (diagnosis, analysis and formulation of the results). As regard the nature of the activity, it can be inferred that operational (and, therefore, routine) activities can be standardized and accordingly their times measured. Once structured (standards, measurements) these activities lend themselves to quantitative analysis. In this regard, management activities fall between the qualitative and quantitative approaches. This follows from the fact that these activities comprise some standard, routine activities, while others are analytical and ad hoc, making them harder to structure as necessary for quantitative approaches. The ad-hoc activities (legal advice processes, for example) are difficult to structure (standardize

and measure) and, in such cases, qualitative approaches may be more appropriate.

Regarding the level of data/information/process structuring, note that the more structured these data/information/processes are, the more appropriate quantitative approaches seem. Therefore, even activities of an operational nature, for example, if not highly structured, may not suit the use of quantitative approaches. Therefore, in some cases, the use of qualitative approaches can provide the basis for further refinement and support for the use of quantitative approaches. This sequence in the use of approaches can pass on project costs. For example, starting in an unstructured environment with a quantitative approach may take longer and, consequently, entail higher costs of specialized professionals. It may thus be appropriate to begin with a qualitative approach to structuring, standardizing and establishing metrics and collecting data that can later be operationalized on a quantitative approach.

A third factor to be considered is the time available to

**Table 5.** Macro levels of workforce planning project governance model.

Concentration of workforce planning				
	Centralized	Standardized	Negotiated	Decentralized
<b>Characteristics</b>	Decision by a central unit on the number of staff required at each organizational unit	Strong normalization with decentralized implementation and centralized compilation	Centralized definition of general policies, demand and performance targets set against a quantitative definition of workforce	Budget versus Performance/ service levels

Source: the authors (2012).

**Table 6.** Template for reaching decisions on the model of governance.

Organizational unit	Concentration of Workforce Planning			
	Centralized	Standardized	Negotiated	Decentralized
A	X			
B			X	
C				X
...	...	...	...	...
Z		X		

Source: the authors (2012).

conduct the workforce sizing project. On one hand, projects that demand a short time may require a qualitative approach. On the other hand, projects that demand a high time require a quantitative approach to data processing, adaptation and validation of models and, especially, analysis of results and the requirements involved.

Seeking complementarity rather than exclusion on principle, the researchers embarked constructing an approach that considered a wide range of possibilities and configurations. For this purpose they reviewed some of the existing theoretical frameworks and approaches. That endeavor gave rise to the product of this study in the form of the meta-method presented below.

## WORKFORCE PLANNING META-METHOD

It first has to be decided on what logic the workforce planning project is to be conducted. That decision must be made explicit to the organization. Table 5 shows four models of workforce planning project governance: i) centralized; ii) standardized; iii) negotiated; and iv) decentralized. These models are distributed along a continuum, which means that there are other ways of conducting projects that are not shown.

This first characterization of the model of workforce planning governance will to some extent establish the relationship that will exist between the different levels in the organization. More specifically, the governance model will define the relationship between senior management and organizational units, and also the role of the human resources area or whatever other technical area is

responsible for the workforce planning method. In fact, the number of possible combinations cannot be specified. These combinations derive from the possibility of using different approaches for different organizational units, and are thus contingent.

In some cases – because of the nature of the activity or some other reason – a centralized approach will be required. In other cases it may be possible to allow the organizational unit to make its own quantitative decisions, within a budget and expected level of service. In addition, standardization of methods and procedures may be centralized while application is decentralized. Within this whole range of possibilities, the chosen permutation has to be decided by the project team in terms of the organization's policies and practices, and considering the environment and organizational culture. Zaidi et al. (2010) show that heterogeneity in the group's composition will influence innovation and quality in its decisions. Table 6 shows a template for possible combinations that can be used in reaching decisions.

The decision as to the degree of concentration of workforce planning activities will have direct repercussions on what methods and procedures are to be adopted. At the limit, a specific approach would be required to choose each governance model. However, regardless of the approach, a set of steps will have to be performed. The proposed steps are shown in Figure 2.

These steps were built on the basis of the theoretical framework presented. The process begins by identifying and specifying the policies that are, or will be, applied in the organization. These policies have to do with workforce-related criteria and definitions. As can be seen in Figure 3, many components make up an organization's





**Figure 3.** Stages of the workforce planning process. Source: the authors (2012).

workforce. This means that not only policies for its own personnel must be considered, but also its models of relationship for outsourced service provision.

The stages of a workforce planning project are shown in Figure 3 and are described below:

a) **Policies:** at this stage, existing policies should be identified and new policies formalized regarding growth (fit), sourcing, centralization and decentralization of certain activities and human resource management (treatment of overtime, multifunctionality, turnover etc.). In addition, management models and practices should be considered, as well as the organization's historical evolution and its projection into the future. It is also at this stage that the human resource planning horizon to be adopted for the project is defined;

b) **Placement:** this seeks to define the unit of analysis and to identify its characteristics with a view to fitting the units to the most appropriate governance model and also to determine the most appropriate sizing methodology. Also to be defined is the appropriate granularity of the analysis (business unit, organizational unit, departments, divisions, management and office). Other issues to be considered for the framework are: i) the nature of the processes, ii) the degree of data structuring, and iii) the volume, variability, visibility and variety of activities. It is also when it must be decided whether application will be uniform (one governance model for all organizational units) or specific models for each organizational unit;

c) **Method:** as discussed in the theoretical framework, there are two major types of methodological approach, i) quantitative and ii) qualitative. The option for one approach or the mix of both depends on the level of data structuring and the information on the nature of work performed by the unit, and also the time available to perform the scaling. Here, it has to be established how many steps will be performed and what data will be collected in the application. It is also necessary to formalize preview of how this data will be compiled and analyzed;

d) **Application:** at this point attention is directed to the procedures adopted for implementing the chosen method. Correct application will provide reliable results. These data provide input for appropriate planning or highlight issues in deciding on the method;

e) **Compilation:** at this stage, the information gathered is consolidated. Consolidation should permit hierarchical analysis. This means it should be possible to analyze a

specific department or office and the aggregate of different departments under one management. It is necessary to have an overall view in order to perform the specific planning. That means it is not enough to identify the need for a function in each department. Rather the overall requirement for a function has to be ascertained, and subsequently how it is to be allocated to each department;

f) **Decision:** the decision process should be stipulated *a priori*, in terms of the sequence of approvals, the actors who participate in the decisions, and criteria for the decision. Not only must the decision be formalized, but most importantly, it must be stated explicitly how the criteria for deciding the workforce composition were applied. This step also involves communicating the decision to the unit managers;

g) **Deployment:** in this stage, actual implementation of the new scaling occurs (layoffs and hiring, relocations, outsourcing etc.). This phase may reveal any problems of definition and work method that may have occurred. Monitoring is thus essential to improving future scaling projects. It is recommended that it be done by the same team that decided the initial settings.

Cross-tabulating the stages of a workforce planning project with the planning governance model results in the planning meta-method shown in Table 7. For each step, there is a corresponding decision to centralize (C) or decentralize (D) implementation.

Whatever the governance model chosen, the stages of policy formulation and decision framing are considered always to be carried out centrally by senior management to support human resources and/or another technical area responsible for workforce planning.

For the other steps – choice of method, implementation, compilation and deployment – the choice for centralization or decentralization is what will determine governance of the workforce planning process. In the case of a centralized governance model, all steps would be executed centrally, except the step of applying the planning method which, once properly standardized, can be decentralized. This model of governance could be applied, for example, by a city health department, according to well-defined parameters (patient flow, types of treatment, scale of operation etc.). It would define the number of doctors, nurses and support staff necessary for clinics and hospitals in the health care network.

Under standardized governance, application of the method would be decentralized and deployment could be

**Table 7.** Workforce planning meta-method.

Sizing process steps	Level of concentration of planning			
	Centralized	Standardized	Negotiated	Decentralized
Policies	C	C	C	C
Placement	C	C	C	C
Method	C	C	C/D	D
Application	C/D	D	D	D
Compilation	C	C	C/D	D
Decision	C	C	C	C
Deployment	C	C/D	C/D	D

Source: the authors (2012).

either centralized or otherwise. The difference from the negotiated model is that, in this case, choice of method can be decentralized, that is, the unit itself would have autonomy to propose the planning method most appropriate to the nature of its activities and, in that case, it also makes sense that data compilation be decentralized.

Decentralized governance, meanwhile, requires that the unit is providing services and that the central unit is ready to 'pay' for these services. Accordingly, the central unit demands and sets the level of service desired, while the supplying unit defines the total cost of services provided. Once the cost is accepted, the service provider unit has the autonomy, within its budget, to quantify the staff needed for service provision and to deploy its own workforce planning. This model would be appropriate, for example, for units whose outcomes are easily compared to market alternatives.

Each of these steps raises a set of issues to be discussed and responded to as knowledge in each project advances. This process will improve the method and the structure of the formal model to be used by the organization in sizing its workforce.

These steps constitute the structure to sizing have a set of elements that are responsible for structuring and outcome of the scaling process. The list of constituent elements is not intended to be exhaustive. However, it seeks to provide evidence of issues to be considered at each stage of the process of workforce sizing. When the meta-method is coupled with these elements one thus has the complete structure of this planning process. This structure is called the Workforce Planning Meta-Method, an Approach to Structuring and Conducting Workforce Planning Projects (ASC). Table 8 shows the ASC.

Thus, the ASC presents the four dimensions that must be considered in the process of organization workforce planning, which are: i) the level of concentration of planning; ii) the stages in the scaling method; iii) the elements to each step; and iv) how these steps are to be performed (centralized or decentralized).

The choice of the element that characterizes a particular step should bear in mind the choices of other elements, because the elements are interrelated, even at

different stages. An explanatory example would be the relationship between the elements of the framework and method steps. Since the framing stage involves a low level of data structuring, it should not be selected quantitative element to define the steps of method, application and compilation. In this case, the database necessary to perform calculations (quantitative) will be unreliable and the decision stage may be compromised. This analysis of interrelationships is critical to demonstrating consistency in decisions taken on the basis of the meta-method.

## Conclusion

Contextualized workforce planning, especially scaling, raises a number of questions that drive research in this area. These issues relate to getting the right people with the appropriate skills to the desired locations at the desired time. Thus, some key issues emerge, such as scaling proper, assignment, training and measurement. These issues are interrelated and there can be no proper solution without considering them all.

Workforce planning is thus a systematic process intended to select the human capital necessary to meet the targets set by the organization. Many approaches have been developed over the years for this purpose.

As regards its contribution to the subject of workforce scaling, this research has structured a theoretical approach characterized by versatility and a range of possible elements to be considered in the scaling, and offering a wide range of possibilities and settings for this process.

The approach produced by this research was structured around four dimensions: i) level of concentration of planning; ii) stages of the proposed scaling method; iii) elements of each step; and iv) how these steps are to be performed (centralized or decentralized).

Performance of the steps defined in this approach will systematically build a broad base of information and a concise process that can assist in increasing the assertiveness of workforce scaling decisions. This

**Table 8.** Approach to structuring and conducting (ASC).

Sizing process steps	Elements	Level of concentration of planning			
		Centralized	Standardized	Negotiated	Decentralized
1 - Policies	Growth (fit)				
	Sourcing	C	C	C	C
	Human Resources				
	Management models and practices				
2 -Placement	Units of analysis				
	Degree of data structuring	C	C	C	C
	Nature of the activities				
	Volume, variability, variety and visibility				
3 - Method	Qualitative	C	C	C or D	D
4 -Application	Quantitative	C or D	D	D	D
5 -Compilation	Compound	C	C	C or D	D
6 - Decision	Strategies	C	C	C	C
7 -Deployment	Criteria				
	Responsibilities	C	C or D	C or D	D

Execution; Centralized (C) / Decentralized (D). Source: the authors (2012).

approach to scaling does not limit the scaling process to any specific approach, but extends the spectrum of possibilities while maintaining the interrelationships between the steps.

Building on this study, three avenues of field work can be explored. The first relates to simulated application of the approach, creating a controlled environment for learning and knowledge alignment. A second would lie in practical application of the approach to organizations in all variety of industries. Lastly, a third possibility would be to draw up a checklist relating to each of the steps in the meta-method in order to evaluate organizations' existing planning processes. This tool will serve as the basis for listing the various planning methods applied by organizations.

Questions such as: Are the companies of the same segment using the same planning method? Are the variables considered common? Have companies from different segments a common planning method? Is there inconsistency between the elements of the planning process? To what extent is the organization's planning process structured? These questions could be answered by using this conceptual tool for assessment or diagnosis.

This research thus contributes by comprehensively organizing the items to be considered in a scaling process, and sets out the steps for implementing the process. This study does not exhaust all possibilities to be considered in this process, but conveys a holistic and integrated approach for professionals interested in workforce planning.

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