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The impact of organizational structures on forecasting practices and performances: evidences on the GMRG database

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THE IMPACT OF ORGANIZATIONAL STRUCTURES ON FORECASTING PRACTICES AND PERFORMANCES: EVIDENCES ON THE GMRG DATABASE

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ABSTRACT

Attention is here paid to the relationship between organizational configurations, forecasting practices and performances. Attention is at first paid on the relationship between the forecaster organizational position and how companies evaluate future demand, and, on a second hand, focus is paid towards the impact of the forecasting organizational structure and companies performances. Empirical evaluations are developed by means of the Global Manufacturing Research Group database concerning practices among 200 international companies by means of ANOVA analyses. This work contributes to current knowledge claiming that when a forecasting approach is developed (mainly in terms of forecasting technique and data collected), attention should also be paid towards who is going to use this approach. From a managerial point of view this work helps companies in better understanding how to structure their forecasting process to gain better performances.

Keywords: demand forecasting, survey analysis, organizational structure

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1. INTRODUCTION

Demand forecasting has always been a relevant issue in both research and practice. Literature provides many different contributions concerning this topic both in terms of forecasting methods and managerial guidelines. A significant part of current knowledge has focused on forecasting practices. Within this topic many authors have provided contributions within specific issues.

Many authors have proposed descriptive analysis of how companies forecast. Watson (1996) provides a detailed description of how companies manage forecasting in the Scottish electronics industry. Similarly, Mentzer and Kahn (1997) provide evidences of practices within 207 US companies in terms of organizational structure adopted, department responsible of evaluating forecasts and degree of formalization of the process. Chaman (2003) provides results from US companies belonging to different industrial sectors and Duran and Flores (1998) analyse forecasting practices in Mexican companies, while Klassen and Flores (2001) focus their attention on Canadian firms. Mentzer and Cox (1984) study the degree of familiarity of different forecasting approaches, thus showing, by means of a survey analysis on 160 companies, the degree of familiarity and satisfaction with forecasting practices. Wisner and Stanley (1994) compare forecasting characteristics between just-in-time (JIT) and non-JIT purchasing departments.

Many authors have also taken a normative approach to the problem, by analysing what elements influence how forecasting is conducted. Several contributions have identified firm size as a major influencing element: larger firms, compared to smaller ones, seem to employ forecasts for different purposes (Peterson, 1993), produce forecasts for different aggregation levels (both in terms of time, product and market; Winklhofer and Diamantopoulos, 1997; Peterson, 1993; Peterson and Jun, 1999), tend to use a bottom-up forecasting process (Peterson, 1993) and use quantitative and sophisticated forecasting techniques (Peterson, 1993; Sanders and Manrodt, 1994). However there is no conclusive evidence regarding the impact of firm size on forecast performance (Diamantopoulos and Winklhofer, 1999).

Other contributions have been given regarding the type of industry: usually forecasters in manufacturing firms are more familiar with complex techniques than forecasters in service firms (Sanders, 1992). Conflicting evidence is found when the type of technique and forecast performance is considered (Peterson, 1990; Kahn and Mentzer, 1995). Uncertainty and environmental turbulence is also considered (Sanders and Manrodt, 1994; Diamantopoulos

and Winklhofer, 1999; Watson, 1996). Winklhofer *et al.* (1996) provide a detailed review of empirical literature regarding forecasting practices. Other authors have also analysed what practices are more effective in gaining accurate predictions. Kahn and Mentzer (1994) provide evidence that team-based forecasting tends to improve the accuracy of forecasts particularly for longer horizons. Companies seem also to be more satisfied with team-based forecasting. Wacker and Sprague (1995) show that performances are positively influenced by the availability of newer equipment. Similar correlation is found with the importance that forecasts pay in sales planning. Extended contributions are given by the same authors by analysing how cultural elements within the organization (e.g., individualism, power-distance, uncertainty avoidance, etc.) affect forecasting practices and thus accuracy (see Wacker and Sprague, 1998).

2. ORGANIZATION CONFIGURATION AND FORECASTING

From the analysis of current literature, however, some issues seem rather unexplored. In particular only partial attention has been paid towards the impact of organisational structures within forecasting. No significant evidence is provided concerning who should be in charge of forecasting and how is forecasting influenced both in terms of practices and performances by the organisation unit in charge of it. Literature provides some hints within this topic: Hughes (2001) focuses attention on organizational topics by means of data collected within 81 UK companies. This work provides a few evidences in terms of main barriers to proper forecasting. Wacker and Sprague (1995) show that cultural elements play a role in particular in terms of which organizational level deals with this process. Chaman (2003) show that if forecast resides in different organizational units this may change performances, since Sales people tend to underestimate demand, while Planning people tend to overestimate it. We argue that two main elements may play a relevant role in how forecast is developed. From one side the *organizational level* at which forecasts are developed may at some rate influence how forecasts are performed. Companies attribute different priorities to forecasting, in particular for some companies forecasting is rather a critical issue since, for example, the production-logistic system is not flexible at all. Other companies, however, may not pay that much attention to the topic or at least consider it relevant only for a specific part of the organization, thus attributing responsibility only to specific company's divisions. One may consider then

that in several companies (in particular if companies face a very strong entrepreneurship) top management may be involved or at least the main responsible in dealing with forecasts. The problem is then if this organizational solution has any impact on how forecasts are conducted. In particular, the more top management is involved, the more forecasts may become a “hope and wish”, rather than a real estimation of future sale. This may imply that companies where forecasting is managed at very high organizational level tends to be less structured, thus leveraging more on “gut feeling” and on less precise information. From a similar perspective, top management should be more concerned with company’s success and management in the long period, thus one may argue that if top management is responsible for managing the process, then forecast would be defined on longer time horizons. Similarly one may argue that forecasts are less frequently updated and that few modifications are made on forecasts when top management is concerned.

From a different point of view, the *organizational function* that is responsible for forecasting can significantly influence how the process is managed. This is mainly due to the fact that different organizational units use forecasts for different purposes, for example, Sales use forecast mainly to prepare the annual budget, while Planning needs forecast for production and procurement decisions.

This claims that according to which organizational function is mainly responsible for producing forecasts, different practices will be applied. First of all, Sales people are frequently considered in forecasting; as a matter of they are usually closer to the customers and they should be more sensitive concerning sales development. However, their incentive system is usually linked to sales they are able to guarantee, thus leading to possible systematic bias in future sales estimation. Sales people are also mainly focused on their customers, thus they will basically use customers’ information and will limit the adoptions of other sources of information. Similarly they will be more focused on using forecast for budgeting purposes, thus they will probably update forecasts rarely, when some kind of update is asked from the top management. Organizational units that use forecasts for different purposes will then probably have different practices. Planning will be basically more focused than other organizational units on short term decisions, and will probably use more sources of information to properly foresee future demand. Similarly, Planning will probably update forecasts more frequently than other organizational units.

The remainder of the paper is structured as follows. First of all objectives are defined and empirical methodology is described, then analyses conducted are described so to provide details on the empirical results. In the end, overall considerations are taken into account basically by comparing analysis results and current literature, thus also stating some suggestions for practitioners facing problems tied to organizational management.

3. RESEARCH OBJECTIVES AND METHODOLOGY

Given the previous considerations, this work aims at better understanding how organizational configuration influences how forecast is conducted and its performances. The aim of the paper is to contribute by providing evidence concerning this topic so to provide some guidelines for practitioners and to identify future research needs. In particular this work focuses on three different objectives:

- 1) First of all, the focus is on the relationship between organizational configurations and forecasting objectives, thus aiming at analysing if organizational level and unit are somehow tied to the specific problem forecasters have to deal, and so the specific scope for which evaluations are derived. Many elements jointly concur in defining who is or should be in charge of forecasting, however, we are not considering a normative approach in order to understand how this choice is done. For sure many different elements are not considered here, since only forecasting objectives are here analysed.
- 2) Then attention is paid towards the influence of the organizational structure on the adoption of specific forecasting practices, in terms of analysing whether the organizational level and unit in charge of forecasting influences how the process is conducted. Since we aim at analysing what companies are doing, our research is primarily focused on identifying any of the relationships that exist among organizational and forecasting practices. Thus we don't want to state any specific hypothesis concerning the nature of this relationship but we just argue that some kind of relationship can be found.
- 3) In the end, attention is paid towards the impact in terms of accuracy of different organizational configurations, thus aiming at identifying whether there is any organizational unit that enhances or not forecasting performances.

These objectives are perceived by means of the 3rd version of the Global Manufacturing Research Group (GMRG) questionnaire. This questionnaire collects data from different

countries concerning practices in manufacturing within specific companies. The 3rd version of the questionnaire has collected data from 245 companies belonging to USA, Taiwan, Lebanon, Canada, Hungary and Italy (the complete and detailed version of the questionnaire is available on the GMRG official website: <http://cibs.tamu.edu/gmrg>). From this set of data we extracted data concerning forecasting practices form companies belonging to similar industrial contexts, in particular from the non-fashion textile manufacturing and machine tooling industry. We also limited our analysis to those companies that have provided details concerning their organizational structure involved in forecasting. For each company we selected those questions that were tied to the following elements.

- *Forecasting organization*: detailed information were provided concerning who has the overall responsibility within forecasting in terms of organizational unit (i.e. Sales, Planning, etc.) and organizational level (i.e., CEO, vice-president, managing director, and so on). In particular answers on these questions were distributed as table 1 shows.

Table 1 – Distribution among companies of organizational unit and level responsible for forecasting

<u>Unit responsible for forecasts</u>	<u>n. of companies</u>	<u>Organizational level responsible for forecasts</u>	<u>n. of companies</u>
Administration	45	President / CEO / Managing director	94
Production	8	Department / Division head	55
Sales	65	Vice president / Director	78
Finance	2	Group / Section manager	10
Planning	80	Other	5
Engineering	23	No answer	3
Marketing	15		
Accounting	2		
Other	1		
No answer	4		
		Total	245
Total	245		

As it can be noted there is a rather different distribution in answers, in particular some items don't seem to frequently appear in companies practices. To simplify analyses, we decided to limit our study only to those items that have a significant numerousness; we considered only those items that were found in at least 20 companies. According to these assumptions, data from 199 companies was considered in the following analyses.

- *Forecasting practices*: information was also collected concerning the extent of adoption of different practices. One question was focused on *forecasting techniques*, considering quantitative and qualitative techniques and simple management opinion; a second topic

concerns the kind of *information* used to generate forecasts, detailed in terms of current economic conditions, customer information, supplier information, results of market research and current order backlog. Then attention is paid on *time horizon* of forecast in terms of how many months into the future does the company forecast. In the end, the number of *forecast modifications* per year is considered.

- *Forecasting objectives*: companies were asked to provide information on the extent to which they use forecasts for budget preparation, production planning, subcontracting decisions, and so on.
- *Forecasting performances*: the average percent error over the past two years was collected from the companies.

Table 2 summarises the variables considered, the item used to detail those variables, the value that each item can assume and the kind of measure adopted in data analysis. Figure 1 summarises research objectives and shows the relationships under analysis.

Table 2 – Variables considered in the analysis, items, values and measure

Variable	Item	Values	Measure
Organizational configuration	Organizational unit	<ul style="list-style-type: none"> • Administration • Sales • Planning • Engineering 	Categorical
	Organizational level	<ul style="list-style-type: none"> • President/CEO/Managing director • Department/Division head • Vice president/Director 	Categorical
Forecasting practices	Forecasting technique	<ul style="list-style-type: none"> • Quantitative (i.e. exponential smoothing) • Qualitative (i.e. expert opinion) • Management opinion 	1-7 Likert scale
	Information	<ul style="list-style-type: none"> • Current economic conditions • Customer information • Supplier information • Results of market research • Current order backlog 	1-7 Likert scale
	Time horizon	N. of months	Continuous
	Forecast modifications per year	N. of modifications per year	Continuous
Forecasting objectives	Extent of use of forecasts in specific purposes	<ul style="list-style-type: none"> • Budget preparation • Production planning • Subcontracting decisions • Material/inventory planning • Sales planning • Human resource planning • New product development • Facilities planning • Equipment purchase planning 	1-7 Likert scale
Forecasting performances	Average percentage error over last two years	Percentage	Continuous

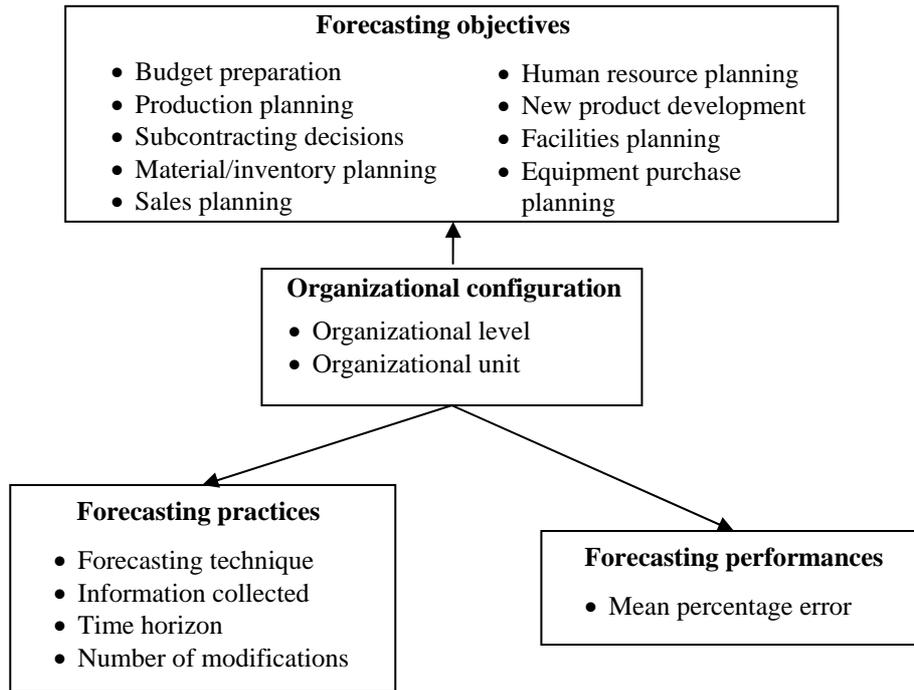


Figure 1 – The overall research framework

4. EMPIRICAL ANALYSIS

Since our main focus is to analyse what are the main differences between companies that use different organizational structures, analysis were mainly developed by means of ANOVA. For all analysis ANOVA comparisons have been evaluated using organizational units and levels as factors and the previously cited items as dependent variable. Only statistically significant relationships have been reported here, characterized by significance inferior to 0.05. Post-hoc tests have been evaluated in order to identify which elements differ more significantly. In particular, Scheffe test for Post-hoc comparisons were evaluated.

4.1. Organizational configurations and forecasting objectives

A first interesting issue focuses on the relationship between organizational configuration and forecasting objectives. ANOVA results confirm the expectations we had concerning this issue (see table 3).

Table 3 - ANOVA of forecasting use according to organizational level

		Sum of Squares	df	Mean Square	F	Sig.
Production planning	Between Groups	13,020	2	6,510	4,009	0,020
	Within Groups	316,656	195	1,624		
	Total	329,677	197			
Subcontracting decisions	Between Groups	23,869	2	11,935	4,402	0,014
	Within Groups	506,994	187	2,711		
	Total	530,863	189			
Material/inventory planning	Between Groups	22,117	2	11,059	5,724	0,004
	Within Groups	376,711	195	1,932		
	Total	398,828	197			
Sales planning	Between Groups	31,897	2	15,949	9,832	0,000
	Within Groups	314,681	194	1,622		
	Total	346,579	196			
Human resource planning	Between Groups	17,392	2	8,696	4,667	0,010
	Within Groups	363,360	195	1,863		
	Total	380,753	197			

Several forecasting objectives seem to be more relevant in different manners according to the specific organizational level. The relevance of the different forecasting objectives seem to change significantly among different organizational structures, claiming that the level at which resides the main responsibility of forecasting has some kind of relationship with what forecast is used for. More details are provided by means of Post-Hoc test that led us identify main differences. Table 4 compares the three different organizational levels on forecasting objectives, by mapping only the significant differences among pairs of roles. Each cell of table 4 identifies objectives that significantly differ between organizational roles. In particular, each cell identifies which item is more adopted when roles on row headings are compared to roles on column headings.

As it can be seen when CEO is mainly involved in the topic, forecasting is less used for several planning decisions, thus claiming that, under this situation, forecasts are less important in taking decision within the company. This may mean be due to the fact that companies like these are not capable of properly understand their environment due to the high variability of the context, and thus tend to rely on flexibility and cope with demand variability by means of different leverages.

Table 4 - Results of post-hoc analyses on forecasting use according to different organizational levels (Sig. >=98%) (cells identify which practices are more adopted when levels on row headings are compared to levels on column headings)

	CEO/Managing director	Vice President / Director	Department/ Division head
CEO/Managing director			
Vice President / Director	<ul style="list-style-type: none"> • Material/inventory planning • Sales planning 		
Department/Division head	<ul style="list-style-type: none"> • Production planning • Subcontracting decisions • Material/inventory planning • Sales planning • Human resource planning 	<ul style="list-style-type: none"> • Production planning 	

If forecast is managed at vice-president level, attention is at first paid on Sales and material planning. When forecasts are managed at department level, production planning becomes a relevant matter too; this is consistent with common knowledge, where production planning are typically delegated to lower levels, while sales planning are usually managed at upper levels.

A similar result can be found when taking into the unit in charge of forecasting. As tables 5 and 6 show, objectives seem to change among units.

Table 5 - ANOVA of forecasting use according to organizational role

		Sum of Squares	df	Mean Square	F	Sig.
Subcontracting decisions	Between Groups	70,117	3	23,372	9,435	0,000
	Within Groups	460,746	186	2,477		
	Total	530,863	189			
Material/inventory planning	Between Groups	45,672	3	15,224	8,363	0,000
	Within Groups	353,156	194	1,820		
	Total	398,828	197			
Sales planning	Between Groups	40,133	3	13,378	8,425	0,000
	Within Groups	306,446	193	1,588		
	Total	346,579	196			
Human resource planning	Between Groups	31,361	3	10,454	5,804	0,001
	Within Groups	349,392	194	1,801		
	Total	380,753	197			
New product development	Between Groups	58,199	3	19,400	6,819	0,000
	Within Groups	551,887	194	2,845		
	Total	610,086	197			

Several considerations can be drawn; Administration and Sales don't seem to take forecast deeply into account when making decisions, while Planning and Engineering do consider

forecast in several decisional issues. In particular, sales' planning is based on forecast more frequently when Planning and Engineering are dealing with it, compared to Sales. This means that the more you want sales planning to be forecast based, the less Sales people have to be involved. Similarly Engineering, compared to Planning, is mainly responsible when forecasts are used in long term decisions as human resource planning. Results thus claim that forecasting objectives are deeply tied to who is in charge of forecasting. The only element that does not change among any unit is budget preparation that seems to be almost equally important in all situations coherently to what has been found in previous works (Durand and Flores, 1998; Chaman, 2003).

Table 6 - Results of post-hoc analyses on forecasting use according to different organizational roles (Sig. >=98%) (cells identify which practices are more adopted when roles on row headings are compared to roles on column headings)

	Administration	Sales	Planning	Engineering
Administration				
Sales				
Planning	<ul style="list-style-type: none"> • Subcontracting decisions • New product development 	<ul style="list-style-type: none"> • Material/inventory planning • Sales planning • New product development 		
Engineering	<ul style="list-style-type: none"> • Subcontracting decisions • Material/inventory planning • Sales planning • Human resource planning • New product development 	<ul style="list-style-type: none"> • Subcontracting decisions • Material/inventory planning • Sales planning • Human resource planning • New product development 	<ul style="list-style-type: none"> • Subcontracting decisions • Material/inventory planning • Human resource planning 	

A second consideration is that organizational level and unit are not completely independent, as table 7 shows. Companies where top management is responsible tend to managed forecast in the Administration or Sales department, while if lower levels are involved, forecasts are generated within Planning or Engineering.

Table 7 – Contingency table for organizational level and unit

	Administration	Sales	Planning	Engineering	Total
CEO/Managing director	24	32	23	3	82
Vice President/Director	7	14	40	10	71
Department/Division head	11	13	14	8	46
Total	42	59	77	21	199

Both Pearson Chi-Square and the Likelihood Ratio identify that there is no uniform distribution within the sample (see table 8).

Table 8 – Pearson Chi Square and Likelihood Ratio for correlation between organizational level and unit

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	27,334	6	0,000
Likelihood Ratio	28,652	6	0,000

This claims that companies manage forecasts in very different ways, thus no preferred solution seems to be found. This may be tied to the specific environment each company is facing and to the particular background companies have coped with in the past.

4.2. Organizational configurations and forecasting practices

When considering the impact of organizational level on forecasting practices, quite interestingly ANOVA shows significant difference only in the degree of adoption of qualitative techniques (see table 9). When CEO is involved qualitative techniques are less adopted compared to other possible organizational configurations (see table 10). These results claim that companies where the CEO is deeply involved in the forecasting process tend to adopt less structured approaches compared to other companies, thus, as one may have expected, leveraging more on gut feeling.

Table 9 - ANOVA for forecasting practice according to organizational level

	Sum of Squares	df	Mean Square	F	Sig.	
Qualitative techniques	Between Groups	39,983	2	19,991	6,726	0,002
	Within Groups	564,763	190	2,972		
	Total	604,746	192			

Table 10 - Post hoc analyses on forecasting use according to organizational levels

	Compared to	Mean Difference	Std. error	Sig.	
Qualitative technique	CEO/Managing director	Department/Division head	-0,88663	0,320	0,006
	CEO/Managing director	Director	-0,94993	0,285	0,001

More complex results arise when organizational role is taken into account. Table 11 shows ANOVA results of forecasting practices.

Table 11 – ANOVA for forecasting practices according to organizational unit

		Sum of Squares	df	Mean Square	F	Sig.
Technique	Qualitative techniques	Between Groups	38,49	3	12,83	4,28 0,006
		Within Groups	566,26	189	3	
		Total	604,75	192		
Information	Current economic conditions	Between Groups	29,41	3	9,8	5,32 0,002
		Within Groups	357,54	194	1,84	
		Total	386,95	197		
Information	Supplier information	Between Groups	70,44	3	23,48	10,31 0,000
		Within Groups	443,97	195	2,28	
		Total	514,41	198		
Information	Results of market research	Between Groups	67,75	3	22,58	8,23 0,000
		Within Groups	529,68	193	2,74	
		Total	597,42	196		
Information	Current order backlog	Between Groups	45,63	3	15,21	8,89 0,000
		Within Groups	332,05	194	1,71	
		Total	377,68	197		
Information	Time horizon (months)	Between Groups	1152,07	3	384,02	6,82 0,000
		Within Groups	10692,49	190	56,28	
		Total	11844,56	193		
Information	N. of modifications	Between Groups	24526,2	3	8175,4	5,48 0,001
		Within Groups	279210,9	187	1493,11	
		Total	303737,09	190		

As it can be noted organizational role significantly influences how forecasting is conducted, as it influences both techniques adopted, kind of information gathered, time horizon and number of forecast modifications. Post-hoc analyses have been again conducted and several differences have been identified among companies.

Table 12 arises several considerations. First of all the number of elements along which companies differ according to different organizational roles is quite relevant, in particular when considering comparisons with Engineering, which seems to influence significantly practices compared to other situations. Planning and Engineering seem to deeply focus on the forecasting process compared to Sales and Administration, since they both use several kinds of information (i.e. Economic conditions and supplier information), tend to adopt qualitative models, provide forecasts for shorter time horizons and tend to update frequently their forecast.

Table 12 - Results of post-hoc analyses on forecasting practices according to organizational roles (Sig. $\geq 98\%$) (cells identify which practices are more adopted when roles on row headings are compared to roles on column headings)

	Administration	Sales	Planning	Engineering
Administration		• Order backlog		
Sales	• Economic conditions		• Management opinion	
Planning	<ul style="list-style-type: none"> • Economic conditions • Supplier Information • Market research • Shorter time horizon 	<ul style="list-style-type: none"> • Qualitative models • Supplier Information • Market research • Order backlog • Shorter time horizon 		
Engineering	<ul style="list-style-type: none"> • Economic conditions • Supplier Information • Market research • N. of modifications • Shorter time horizon 	<ul style="list-style-type: none"> • Qualitative models • Economic conditions • Supplier Information • Market research • Order backlog • N. of modifications • Shorter time horizon 	<ul style="list-style-type: none"> • Economic conditions • Supplier Information • N. of modifications 	

These results claim that organizational roles that are typically affected by short term demand variability tend to concentrate more on forecasting and probably have a more structured approach to this process. Quite interestingly Sales seem to pay not much attention to forecasting issues, and tend to primarily rely on management opinion compared to more structured approaches.

4.3. Organizational configurations and forecasting performances

From the previous analyses Planning and Engineering seem to be most focused on the forecasting since they tend to use it in several decisional problems and tend to spend significant efforts in its development. One may argue that, given previous results, companies involving these two functions will perform better than those that involve Administration and Sales. To verify this argument we compared forecasting performances measured by means of percentage mean error.

While no significant differences can be found when organizational level is taken into account, Post-hoc analysis, quite surprisingly, show that Planning tend to have a rather higher percentage error compared to the other organizational units (see table 13). This result is somehow surprising since, as previously showed, Planning tends to pay attention towards the forecasting process, but this seems not to pay off. The reasons for this phenomenon can be

traced back to different reasons. First of all we collected information concerning efforts spent if the forecasting process and performances gained, but we don't have any information regarding how forecasting practices are really applied, thus we are not able to evaluate the efficacy gained by such big efforts. Moreover, the performance metric adopted may be somehow tricky, since it doesn't consider how error is measured, in particular in terms of whether the metric the single company considered is closer to MAPE or to MPE. Then, accuracy is achieved according to the specific environment each company faces, in terms of demand variability, demand complexity and variability factors, which are not considered here. In the end performances gained depend also on desired performances: in other terms, according to the specific use of forecasts one may be more concerned with keeping error low or not, in particular according to the specific system that in mainly going to use these forecasts.

Table 13 - Post hoc analysis of Planning versus other functions

	Compared to	Percentage error mean difference	Std. Error	Sig.
Planning	Administration	15,644	2,812	0,000
	Sales	12,451	2,533	0,000
	Engineering	15,765	3,360	0,000

5. CONCLUSIONS

This work shows that organization of the forecasting functions deeply influences how forecasts are conducted, thus companies should deeply take into account organizational issues when dealing with future demand estimations. Even if results are derived from a specific and limited source, we argue that findings, at least partially, can be at some rate generalized. Some overall considerations can be drawn; first of all organizational unit and level seem to be somehow related.

On a second perspective, forecasting objectives seem to be deeply related to both unit and level thus claiming that according to the specific problem a company faces, a specific organizational configuration should be used. Quite interestingly, there isn't a similar relationship when practices are considered, in particular organizational level seem not to be deeply related to forecasting practices, while organizational unit seems to deeply influence how forecast is generated. This may be due to the specific competences and scopes different organizational units have.

The overall relationship between organization and practice will probably hold in different contexts, even if with different relationships.

From these results, some hints for future results can also be derived. First of all, even if some relationships have been found between organization and practices, some more research is needed within this topic, in particular in terms of who should be in charge of forecasting within specific companies. This work has been approached according to a descriptive perspective, while normative research is needed in order to properly help practitioners in better managing their resources.

From a different perspective, empirical results show that, even if some relationships between organization and company's performance has been found, there seems to be room for better understanding of which organizational configurations are more effective.

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