

# Alignment matters - Improving business functions using the Procurement Alignment Framework

Ronald Batenburg and Johan Versendaal  
Institute of Information and Computing Sciences  
Utrecht University  
{r.s.batenburg, j.versendaal}@cs.uu.nl

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## Abstract

The procurement business function is increasingly recognized as strategic. We propose an improvement approach of the procurement function using the Procurement Alignment Framework. The framework is based on the hypothesis that the performance of the procurement business function is positively related to (1) the single maturity of five business dimensions (strategy & policy, monitoring & control, organization & processes, people & culture, IT) with respect to procurement, and (2) the alignment of these five maturities. A survey tool ('scan') based on the Procurement Alignment Framework is applied to 55 Dutch organizations from various industries and size categories. As expected, we found significant correlations between maturity and alignment of the business dimensions on the one hand, and procurement performance on the other. Consequently, the tool and framework can be used to provide specific recommendations for organizations to move their procurement business function forward.

## Introduction

Back in the 1980's, Kraljic (1983), Speckman (1981), Porter (1985), and others early identified the strategic importance of procurement. Many companies, however, have unnoted the competitive value of the procurement business function, until the late 1990's. The primary interests of managers concerned the internal processes, and sales and marketing. Nowadays, new opportunities related to procurement arise: e-procurement, spend management, outsourcing (e.g. procurement in the service domain), joint product design, and more. Although the opportunities for improvement seem abound, anecdotal evidence shows that many procurement initiatives in general – and IT-implementations in the procurement domain specifically – do not deliver the expected benefits (cf. Adamson, 2001; Pan, et al., 2004). As the number and diversity of procurement models, perspectives and concepts continues to grow, the need to combine or integrate these increases likewise. In addition, the demand revives for their empirical validation, including evaluation of the claims and assumptions of models and approaches to improve procurement in organizations.

In this paper, we attempt to achieve both the practical and academic benefits of (1) integrating existing approaches to procurement improvement and optimization, and (2) validating the assumptions underlying these approaches through data surveying a substantial number of procurement managers. The practical question we want to address in this paper is as follows:

*How can organizations plan their investments in procurement in such a way, that the critical business dimensions to the procurement business function are aligned, and hence procurement performance is increased.*

As will be explained below, we provide an answer to this question by developing the Procurement Alignment Framework (PAF), and subsequently validating it through testing its underlying hypothesis:

*The procurement performance of an organization is positively related to 1) the single maturity of five business dimensions (strategy & policy, monitoring & control, organization & processes, people & culture, IT) with respect to procurement and 2) the alignment of the maturity levels of these five business dimensions.*

Below, we will first elaborate on the foundations and construction of the Procurement Alignment Framework. Then, the survey tool ('scan') that is based on the framework is described including the ex-ante validation of this measurement tool. Next, the data collection by surveying 55 procurement managers from different organizations is explained, i.e. the practical application of the PAF-based questionnaire. After testing our central hypothesis through several analyses, we provide leads for procurement improvement plans, based on the PAF-scan and its outcomes. We close with recommendations and suggestions for further research.

## **Constructing the Procurement Alignment Framework**

### *Procurement maturity*

The first pillar of our theoretical framework is based on the concept of progress maturity. In general, the idea of maturity is presented by sketching a number of growth stages that depict the potential-upward development or performance of organizations during several sequential periods of time. In most representations time or periods are labeled on the horizontal dimension, whereas the performance level is projected on the vertical dimension. Within the field of information systems, the Nolan model is often quoted as the origin of the maturity perspective (Nolan, 1979). Nolan's model represents the specific pattern of IT-adoption or IT-management by organizations. Its baseline is that IT-adoption or IT-management are adopted slowly by a small group at the beginning of its emergence, quickly followed by a large group, and finally with a small group that might stay behind in adoption for a long time. This pattern is labeled the S-curve, as this resembles the cumulative frequency distribution of adoption within groups (cf. Rogers, 1995). With the adaptation of the Nolan growth model by the movement of quality management and related activities, the principle of defining stages of growth was further extended and applied to the development of organizations or their parts. Within the field of information systems planning, Earl's model of learning curves with respect to IT can be considered as one of the first examples of this extension (Earl, 1989). Since then, both the original Nolan and Earl models have been revised, extended, specified and modified, in line with progress made in the field of information systems and software engineering (see Galliers, 1991). After publication by the Software Engineering Institute (SEI) at Carnegie Mellon, the Capability Maturity Model (CMM) has become an established model in the field of information systems. It is designed to measure, monitor and evaluate the professional development and engineering of software and many related domains such as IT-governance, project management, people management and so on (Peppard and Ward, 1999), with the assumption that the higher the level, the more mature and the higher the performance of an organization.

With the idea that the procurement function has the ability to influence corporate profitability favorably, the functional development has been a topic of great interest. Departing from the passive, re-active clerical viewpoint of the 70's the procurement function has the ability to develop itself in a strategic pro-active function contributing, as much as other business functions, to the creation of (sustainable) competitive advantages. The fact that such a

significant advantage can be achieved is described by many authors (e.g. Adamson, 1980; Porter, 1985; Cavinato, 1991; Herberling, 1993).

During the last two decades numerous authors proposed, and constructed, development models for corporate procurement, most of which assume a stage/step-wise development. Van Weele and Rietveld (2000) derive an integrated purchasing development model, based on twelve of such distinct models, (a.o. Keough, 1993), addressing procurement maturity through development stages:

- Transactional orientation;
- Commercial orientation;
- Purchasing co-ordination;
- Internal integration;
- External integration;
- Value chain integration.

In our framework we will adopt these stages.

### *Procurement alignment*

The second pillar of our framework is based on the concept of business-alignment. We explicitly reflect on the alignment of Information Systems and Information Technology (IS/IT) with the rest of the business: deployment of new IT is often a trigger for improving the business (Ward and Peppard, 2003). Since the 1980's, scholars, analysts and consultants alike have advocated an aligned approach with regard to introduction and deployment of information systems in organizations. One widely cited source is Porter (2001), who argues that the Internet does not make business strategy obsolete. Instead, an Internet and business strategy should coincide. On an operational level, many authors can be cited for the statement that IT implementations should come along with a careful consideration of business processes and other organizational issues (cf. Peppard and Ward, 1999; Hammer and Champy, 1994). This message is also recognized within practical guidelines, such as Sowa and Zachman (1992) who propose a system development perspective that can be considered holistic, taking the views of data, function, network, organization, strategy, and scheduling into account. All of the mentioned authors similarly encourage the alignment of IT with business processes, structures and strategies.

Historically, Scott Morton's book on *The Corporation of the 1990's* (1991) can be considered as the foundation of business/IT-alignment. Better known however, is Henderson and Venkatraman's Strategic Alignment Model, one of the first concepts to support organizations in leveraging new IT technologies (Henderson and Venkatraman, 1993). Business strategy, IT strategy, organizational infrastructure and processes, and IT infrastructure and processes should be in balance through strategic fit, and functional integration (see also Luftman et al., 1993). Subsequently, several authors applied the Strategic Alignment Model. With varying success, the connection between alignment and organizational performance has been investigated (Cragg, et al., 2002; Kearns and Lederer, 2000; Peppard and Ward, 1999). With this in mind we elaborate the business domain (while explicitly connecting it with the IT domain) by using the strategic alignment model of Turban, et al. (1999) and specifically its extension by Scheper (2002). In Scheper's adaptation of the model, the following five 'business dimensions' are crucial parts of every organization that need to be integrated:

- Strategy and policy
- Monitoring and control
- Organization and processes
- People and culture

- Information technology

Basically, Scheper's hypothesis is that synchronizing or leveling of the five dimensions will significantly contribute to the performance of an organization. Based on his benchmark study over 265 Dutch housing corporations this hypothesis is indeed confirmed (Scheper, 2002). In addition, the same hypothesis was confirmed by data collected among 30 CRM-managers (Batenburg and Versendaal, 2004).

We will take Scheper's framework of (strategic) business-alignment. In fact, its foundations are applied to combine the concept of procurement maturity and procurement alignment within one integrative framework. The six maturity stages as identified in the previous paragraph are allocated as the concrete achievement levels for a (equal) number of indicators that cover each of the five business dimensions in relation to the procurement function. The empirical appearance of the framework will be described in the next section. At this point, it is important to stress that our procurement framework serves the goal of measuring, monitoring, and comparing corporate procurement related design and activities through self-assessment in absolute and relative terms. The key is that the framework is generally applicable, yet it provides situational instead of general recommendations.

Other scholars and practitioners have identified multiple perspectives in describing the procurement business function. Cavinato (1999) identifies 15 attributes or viewpoints, to track procurement across developmental maturity stages: a.o. key procurement measures, management style, budgetary approach towards procurement. A.T. Kerney's house of purchasing and supply management framework identifies eight dimensions ("The New," 2000): purchasing/supply strategy, purchasing/supply organization, strategic sourcing, supplier management, day-to-day purchasing, performance management, information management, human resource management. The Michigan State University (MSU) purchasing model (cf. "Purchasing Excellence", 2003) distinguishes eight strategic processes (e.g. insourcing/outsourcing, commodity development) that need to be supported by a number of other aspects: general purchasing and supply chain strategy, organizational strategies, globalization strategy, purchasing and supply chain measurement, IS/IT support, human resource development and training.

The major characteristics of *our* procurement framework are:

- Each dimension is equally important and should be 'in-alignment'. The performance of the organization in the procurement domain is as high as the weakest (least mature) dimension.
- Information technology is addressed explicitly, and is also valued as a potential enabler for improved procurement performance.
- We allow for a situational application of our framework, taking into account company characteristics, like company size, branch, etc (see next chapter).
- We explicitly incorporate procurement performance (see next paragraph).

#### *Procurement performance*

The goal of our framework is to let organizations perform better in the procurement domain. Therefore, we explicitly insert procurement performance into our framework. Berkowitz and Mohan (1987), Monczka and Trent (1991), Porter (1985) and Sutton (1989) identify the following benefits when effectively manage the procurement function: cost reduction, enhanced profitability, assured supplies, quality improvements, and competitive advantage. The I-Frame (Versendaal and Brinkkemper, 2003), a procurement improvement framework, provides no less than twenty different benefits derived from several sources in the

(procurement and e-business) literature. Those benefits can be categorized as follows: process-related (with e.g. the benefit of improved sourcing decisions), cost-related (e.g. reduced purchasing costs), product quality-related (e.g. better product quality), and organization-related (e.g. increased trustworthiness). In an investigation of procurement improvement effectiveness, Accenture (2002) identifies the following four procurement performance indicators: purchase price index, quality conformance, raw material inventory turnover, and supplier delivery accuracy. These indicators can be easily mapped onto the identified benefits in the I-Frame.

So for our framework we can select from many performance indicators and benefits. In order to have a manageable set of performance indicators for our framework we include only a very limited set of indicators per procurement level (strategic, tactical and operational) (Note that procurement functions can be considered on the strategic, tactical and operational level; e.g. De Paoli (1999), Weele (2001), mySAP (2003), and Versendaal and Brinkkemper (2003)). The successful research from Accenture encourages us to select the following procurement performance indicators.

- Quality conformance (strategic)
- Price purchase index (strategic and tactical)
- Supplier delivery accuracy (operational)
- Transaction costs (operational)

### Resulting framework

Figure 1 depicts the procurement alignment framework, and visualizes the hypothesis.

Business dimension	Transactional orientation	Commercial orientation	Purchasing co-ordination	Internal integration	External integration	Value chain integration
Strategy and policy						<i>increasing maturity</i>
Monitoring and control						<i>increasing maturity</i>
Organization and processes						<i>increasing maturity</i>
People and culture						<i>increasing maturity</i>
Information technology						<i>increasing maturity</i>
↓						
<b>Procurement performance</b>						
Quality conformance	Price purchase index	Supplier delivery accuracy	Transaction costs			

Figure 1: The procurement alignment framework

### Data collection

During the fall of 2005, 54 procurement managers from 54 Dutch companies in different branches and size categories took part in a two-hour expert meeting. Their participation was partly solicited through ‘cold calling’, but most of them were recruited from the social and business networks of Business Informatics students at Utrecht University, as part of a 10-weeks master course. The setting for the expert meetings (in six comparable sessions divided

over two days) was the “policy lab” of Utrecht University, an electronic meeting room with GroupSystems software installed to support taking surveys and managing discussions (cf. Nunamaker et al., 1991; Fjermestad & Hiltz, 2001). Table 1 shows the composition of our respondent group by size and industry.

**Table 1: Respondents by employee size and sector**

Sector	Number of Employees			Total
	< 50	50-250	>250	
IT, Tele-communications and B2B-services	3	1	7	11
Government and Education	4	3	7	14
Manufacturing	3	6	11	20
Trade, Transport and Logistics	3	3	3	9
Total	13	13	28	54

During this meeting, the managers completed four on-line surveys while in between oral group discussion about e-procurement were held. One questionnaire contained 12 questions about the company in general, including questions about their purchase portfolio and supply chain position. The second and main survey consisted of 50 questions related to the five business dimensions of the PAF as presented above (for each dimension, 10 Likert-items were proposed to measure maturity, further details will follow below). Third, eight questions were posed by which the respondents self-estimated their procurement performance (further details will follow below also). Fourth and finally, the respondents answered 10 questions on how their IT was specifically aligned with other strategic and operational domains within the organizations.

Since the questionnaires were completed during the discussion meetings, i.e. in the presence of the students that participated in its creation, the validity and reliability of the questions were checked directly at the spot. Only a small number of remarks and questions was received during the surveying, which indicates that the respondents had no difficulties in understanding and answering the (large amount of 82) questions. The average time respondents spent on answering all questionnaires was approximately 45 minutes.

### **Measuring procurement maturity**

As introduced above, the respondents received five sets of 10 questions that aim to measure the organization’s maturity levels (at moment of the meeting) according to the five business dimensions of the PAF presented earlier. The maturity of the IT business dimensions for instance, was measured by 10 questions about the use and application of procurement and purchase related IT and information systems (IS/IT) within the organization. The questions were ordered and presented to the respondent according to IT/IS complexity or maturity. The first question asked the respondents if a simple IS/IT procurement application was in place, while the tenth question queried if an inter-organizational e-procurement system was implemented. For the other four business dimensions – strategy & policy, monitoring & control, organization & processes and people & culture – the same principle of ordering and presenting the 10 items was applied. Appendix A provides the complete list of 50 maturity items including their average scores. From the mean scores presented in the Appendix it can be noted that the items were successfully ordered by complexity (‘difficulty’, i.e. maturity), as the mean score within each array of 10 decreases. In addition, it can be seen from the formulation

of the items that the respondents were systematically reminded to answer all questions for ‘their organization’ and ‘the spend category of focus’ only. Both the organizational scope (i.e. the organization or business unit(s) that are the receivers of the respondents’ purchase activities), and the spend category (i.e. the type of goods or services that belong to the main purchase responsibilities of the respondent) were queried in the first questionnaire of the meeting.

The companies’ maturity level for each of the five business dimensions was computed by the unweighted sum of the 10 Likert items. This aggregation is supported by reliability analysis of each item-set. Chronbachs Alpha varied between 0.76 (for the 10 strategy and policy items) and 0.86 (for the 10 IT items) demonstrating that for each business dimension the items coincide and form an internal consistent and reliable scale. Table 2 shows the descriptive statistics of the five scales being the measurement of the five business dimensions’ maturity levels.

**Table 2: Average scores on maturity level by the five PAF business dimensions (summed scores, minimum=10, maximum=50)**

	Mean	St Dev	N
Strategy and Policy	36,92	5,32	54
Organization and Processes	36,09	6,88	54
Monitoring and Control	33,05	6,32	54
People and Culture	34,21	6,60	54
Information Technology	29,77	8,35	54

### Measuring alignment

Alignment is defined within the PAF as the degree of leveling between the five business dimensions: the more the five dimensions are at the same maturity level, the higher the alignment score. There are different ways of actually measuring this concept of alignment. Here we apply the basic idea that the difference between the minimum and the maximum maturity score within the array of five as an appropriate measurement (cf. Batenburg & Versendaal, 2004). Variations as computing the standard deviation, or selecting the minimum score only (as the ‘weakest link’), highly correlate with this basic measurement of alignment. As can be seen from the average scores presented in Table 1, the 54 organizations have comparable mean scores on four of the five dimensions, while the IT maturity lacks behind. By our definition, the discrepancy between IT and the other dimensions diminishes the ‘optimal’ alignment score of the average company. This is represented in Figure 2, where the solid line represents the optimal alignment situation: all maturity scores are equal, and at the level of highest maturity score (39.92 for strategy and policy).

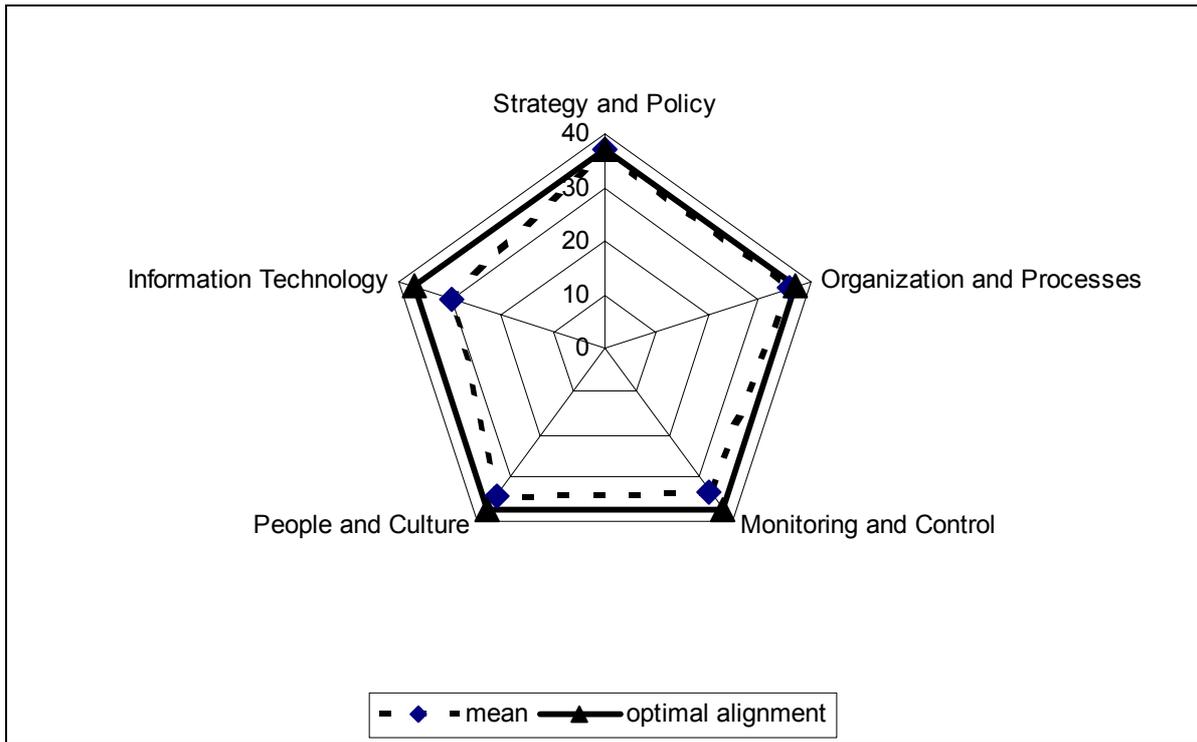


Figure 2: The mean maturity scores and 'optimal alignment'

Within our dataset, the average difference between the lowest and highest maturity sum score was 10.76, standard deviation was 4.28 (theoretically, the maximum maturity difference would be 40 (50 minus 10), the minimum 0).

### Measuring procurement performance

Procurement performance was measured through eight questions about the perceived and relative success of the respondents' organization. Four questions were posed to the respondent to obtain an estimation of the procurement performance increase of the organization over the last two years. Four additional questions were posed to measure the extent to which the respondent's company outperforms its competitors with regard to procurement. Both the *time* and *competitor* related questions specified performance in four dimensions, i.e. delivery times, price of goods, quality of goods and transaction costs. As is known from earlier research, these four variables are reliable indicators for buyer-supplier performance in general (Toole, 2002; Humphreys, 2004). Table 3 shows the results of this measurement. It appears that, in general, respondents judge their procurement performance compared to competitors as somewhat lower compared to their performance improvement over time. This is probably due to the fact that the uncertainty about their previous performance is lower compared to the estimation of the competitor's performance, resulting in more 'moderate' self-estimations.

**Table 3: Average score on procurement performance by item, as self-estimated by respondents**

	Mean	St Dev	N
<i>Performance compared over time</i>			
The average time from purchase order to delivery (as for the 'spend category' of focus) has decreased in the last two years.	3.47	1.01	54
The average number of 'spend category'-items that do not measure up to the agreed quality has decreased in the last two years.	3.25	0.92	54
The average purchase price of 'spend category'-items has decreased in the last two years (controlled for the influence of market forces).	3.36	1.20	54

The average purchase cost per transaction as for the 'spend category'-items has decreased in the last two years.	3.29	1.13	54
<i>Performance compared with competitors</i>			
The average time from purchase order to delivery (as for the 'spend category' of focus) is shorter compared to our main competitors.	3.00	0.66	54
The average number of 'spend category'-items that do not measure up to the agreed quality is lower compared to our main competitors.	3.01	0.59	54
The average purchase price of 'spend category'-items is lower compared to our main competitors (controlled the influence of market forces).	3.05	0.84	54
The average purchase cost per transaction for the 'spend category'-items is lower compared to our main competitors.	3.01	0.87	54

As with the procurement maturity measurement, reliability analysis was performed to validate the aggregation of the eight questions, resulting into one latent indicator of procurement performance. We consider the Chronbach's Alpha score of 0.66 for the eight variables as acceptable to sum the items.

## Results

To investigate the relationship between procurement maturity, alignment and performance as formulated in our core hypothesis, we first used basic correlation analysis. Results are displayed in Table 4.

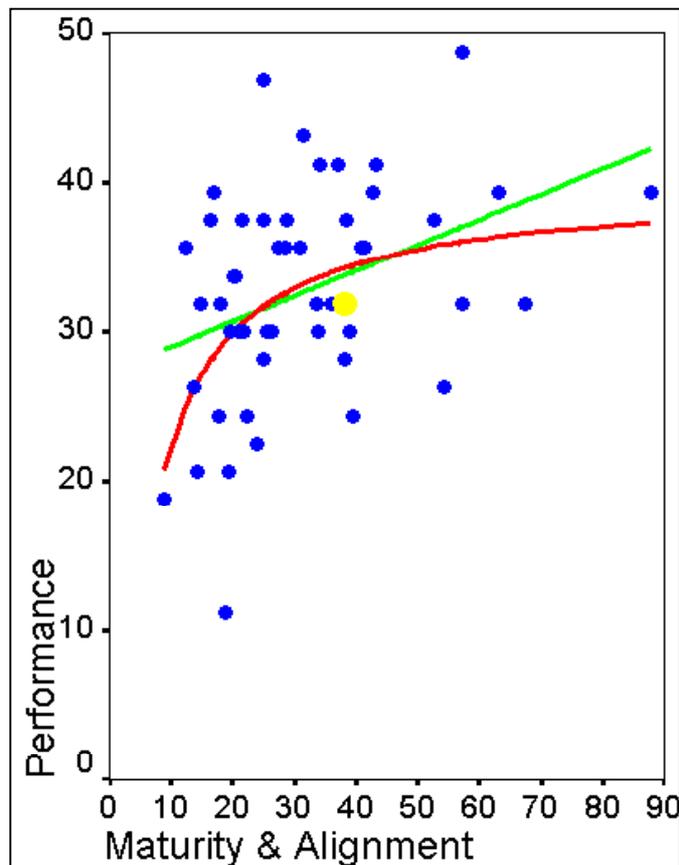
**Table 4: Correlations between maturity and alignment of the PAF business dimensions and procurement performance**

	Correlation coefficient	P-value (2-tailed)	N
Strategy and Policy	.20	.15	54
Organization and Processes	.28	.04	54
Monitoring and Control	.37	.01	54
People and Culture	.28	.04	54
Information Technology	.35	.01	54
'Alignment', i.e. difference between the minimum and maximum maturity score	-.29	.03	54

All maturity dimensions are significantly related to (respondents' perceived) procurement performance, except from strategy and policy. This is remarkable, as the strategic position of procurement is often considered a crucial precondition for successful procurement. In contrast, the maturity of the organizations' IT (i.e. 'e-procurement'), and the level of monitoring and control in relation to procurement are quite strongly and positively correlated with procurement performance. As expected, the 'reversed alignment score' (i.e. the difference the minimum and maximum maturity score) is significantly and negatively correlated with procurement performance.

Secondly, to finalize the testing of our hypothesis, we summed all five maturity scores and divided it by the difference score. In this way, we have one integrated measurement of both alignment and maturity, and hence can test if both indicators coincide in their effect on procurement performance. The results is supportive for our expectations: the maturity/alignment factor correlates significant and positive with procurement performance as  $r = 0.39$  ( $p < .01$ ). To demonstrate some more detail on the shape of the relationship, Figure 3 contains a graphical depiction of all cases on the two variables. Curve estimation showed that

the explained variance for the linear model is 0.141 ( $p < .01$ ; green line) and 0.192 ( $p < .01$ ) for an S-curve approximation (red line).



In order to check our correlation analysis for stability of results, we conducted partial correlation by controlling for three relevant background characteristics: employee size, industry (dummies for each of the four sectors, see Table 1) and corporate strategy (dummies for product leadership, operational excellence, customer intimacy). It appeared that the relationship between maturity/alignment and performance remains positive and significant.

### Conclusion

The results of the research provide strategies for companies willing to embark on procurement initiatives. With a procurement maturity assessment, using the 'scan', one can identify the business/IT-dimension with highest score and take that as a start to also align the other dimensions to it. Drilling down into the questions of the scan, per business/IT-dimension, one can define a strategy of procurement actions to take in order to align to the dimension with the highest score.

Moreover, the results of the assessment of the 54 companies that were part of this research can be used as a benchmark. Because we have specific company details for each of the 54 companies (e.g. size, branche), a focused benchmark can be constructed. Subsequently the benchmark results (e.g. the mean of the set of companies) can be defined as the objective for the company of interest.

An area for future research is the remarkable weak correlation between the 'strategy & policy' maturity score and the procurement performance. Also more company assessments (e.g. also

taking non-Dutch organizations into account) will contribute to the validation of the Procurement Alignment Framework and its underlying hypothesis.

Finally we are planning to investigate the PAF's usefulness for specific procurement segments, like services (including outsourcing), indirect materials, direct materials, and more.

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**Appendix A: Questionnaire related to the five key business dimensions of the PAF; original items and their average score (N=54)**

<b>All questions were answered by ticking 1 option from the 5-point scale: 1 'fully disagree', 2 'disagree', 3 'neutral', 4 'agree', 5 'fully agree'.</b>	<b>Mean</b>
<i>Business Dimension: Strategy and Policy</i>	
1. In order not to run out of stock for your 'spend category'-items, the purchasing department within 'your organization' purchases at appropriate suppliers.	4,0182
2. In 'your organization', the price of your 'spend category'-items is considered as an explicit purchasing selection criterion.	4,0364
2. In 'your organization', the price of your 'spend category'-items is considered as an explicit purchasing selection criterion.	4,2909
3. In 'your organization', quality of your 'spend category'-items is considered an explicit purchasing selection criterion.	3,8727
4. The procurement department aims for standardization of processes and 'spend category'-items in order to leverage the full potential of procurement.	3,7636
5. Procurement vision, strategy and policy for your 'spend category' are evaluated periodically.	3,7636
6. The purchasing department makes procurement decisions for the 'spend category' from a context of their impact on 'your organization' as a whole.	3,8148
7. 'Your organization' sees the relationship with suppliers of 'spend category'-items as a strategic asset.	3,6852
8. 'Your organization' intensively cooperates with suppliers of 'spend category'-items through mutual knowledge sharing.	2,7273
9. 'Your organization' monitors the full upstream supply chain (suppliers of 'spend category'-items and even your supplier's suppliers).	2,7273□
<i>Business Dimension: Organization and Processes</i>	
11. Suppliers provide us with our 'spend category'-items.	4,0182
12. Purchase requisitions (draft purchase orders) can be transferred to purchase orders and purchase contracts for the 'spend category' of focus.	3,8182
13. 'Your organization' maintains a supplier base for the 'spend category' of focus.	3,8545
14. Your purchasing department ensures that there is sufficient availability of 'spend category'-items.	3,6909
15. By constantly reviewing the internal procurement business function, purchasing efficiency for the 'spend category' of focus is improved.	3,8000
16. In 'your organization' cross-functional teams share existing approaches and create new ideas for procurement of 'spend category'-items.	3,6364
17. Your relationships with suppliers of your 'spend-category'-items are based on the idea that suppliers are part of 'your organization's' resources.	3,5636
18. Key suppliers are involved as joint problem solvers and you focus on sourcing your 'spend-category'-items through partnerships.	3,7091
19. You have process schemes that support the integration of your procurement functions with those of your main suppliers.	2,7636
20. Suppliers of your 'spend category'-items are an integrated part of your product development.	3,2364□
<i>Business Dimension: Monitoring and Control</i>	
21. In your organization the authorization of purchases of 'spend category'-items is clearly settled.	4,3455
22. Your procurement function is expected to minimize costs against a the purchase budget for your 'spend category'-items.	3,9818
23. You apply non-standard terms and conditions in your suppliers' contracts for your 'spend-category'-items.	3,4909

24. In 'your organization', the purchase department always looks for competitive bids from multiple suppliers of your 'spend category'-items.	3,8364
25. Your purchase department has implemented a supplier bonus system (or equivalent financial system) to stimulate the supplier performance.	2,2909
26. In 'your organization' markets, products and suppliers are continuously monitored and analyzed, as for the 'spend category' of focus.	3,4545
27. Suppliers of your 'spend category'-items are classified based on financial added value and risk (as in the Kraljic matrix).	3,4545
28. Performance of suppliers of 'spend category'-items is directly communicated by using key performance indicators.	3,0182
29. To improve monitoring and control of the procurement process of 'spend category'-items, you apply value chain integration.	2,6364
30. 'Your organization' defines procurement performance measures against world class standards in a joint effort with the suppliers of your 'spend category'-items and your customers.	2,5455□
<i>Business Dimension: People and Culture</i>	
31. Purchase (procurement) of 'spend category'-items is considered a necessary function within 'your organization'.	4,2727
32. Within 'your organization', education includes knowledge of purchasing strategies for procurement staff involved in the purchasing of 'spend category'-items.	3,6364
33. There is a formal appraisal scheme for procurement staff involved in the purchasing of 'spend category'-items.	3,4364
34. Your purchase department explicitly takes the purchasing trends and ethics into account when purchasing your 'spend category'-items.	3,8364
35. The employees involved in the purchasing of 'spend category'-items are permanently coached on their working processes.	3,7091
36. Your purchase employees involved in the purchasing of 'spend category'-items work in multidisciplinary teams.	3,4909
37. There are competency profiles available for the complete purchase staff involved in the purchasing of 'spend category'-items.	3,2545
38. Your purchase employees involved in the purchasing of your 'spend category'-items work in teams with employees of your suppliers.	2,6545
39. Your employees involved in the purchasing of 'spend category'-items have the complete individual responsibility within their functions to make independent procurement decisions.	2,8909
40. Within 'your organization', the recruitment of new purchase employees (to be involved in the purchasing of your 'spend category'-items) is related to the people and culture of your chain partners.	3,0364□
<i>Business Dimension: Information Technology</i>	
41. In 'your organization', an information system is used to automate the order handling processes for your 'spend category'-items.	3,9273
42. In 'your organization', an information system supports contract management for your 'spend category'-items.	3,3455
43. In 'your organization', an information system is used to track suppliers' performance for the 'spend category' of focus.	3,2545
44. IT investments within 'your organization' are specifically aligned to the procurement strategy of your 'spend category'-items.	2,9630
45. In 'your organization', most of the IT systems are linked to the information system(s) that support the procurement of your 'spend category'-items.	3,2407
46. In 'your organization', an information system is used to support shared planning and forecasting with your main suppliers of your 'spend category'-items.	2,5370
47. 'Your organization' has established integration into the main suppliers' information systems, for the 'spend category' of focus.	2,6667
48. Your organization has direct access to most databases of your main suppliers of 'spend category'-items.	2,3519
49. E-business technologies are applied in a specific e-procurement application for the 'spend category' of focus.	2,9815
50. The e-procurement system supports direct interaction with the e-business	2,4630□

systems of your chain partners, as for the 'spend category' of focus.

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