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Glossary and Key Definitions

AL – Activity Leader

EC – European Commission

PCA tool – Purchasing Competence Assessment Tool developed by Project PERFECT

Higher Education (HE) – in the context of this white paper, HE is used to denote post school education at universities or similar educational establishments, especially to degree level

Intellectual Output (IO) – the six main parts/work packages/activities of the overall PERFECT Project resulting in defined outputs depending on the nature of the IO

IPSERA – International Purchasing & Supply Education & Research Association

PERFECT – Purchasing Education and Research for European Competence Transfer, name of the project

PSM – Purchasing and Supply Management, which comprises the management of external inputs – materials, services, capabilities and knowledge – that are required for building, running and maintaining the focal firm's processes, while simultaneously managing the external and internal stakeholder network with an extended upstream supply network understanding.

1. Executive Summary

Managing human resources in today's dynamic environment is becoming increasingly important, but ever more complex. Recognition of people as a valuable resource in the organization has led to increases in employee investment, training and development. The activities involved in Purchasing and Supply Management (PSM) have also become more critical to how organisations can maintain and increase their competitive advantage and the PSM function is now considered to be one of strategic importance. Intellectual Output 5 (IO5) of project PERFECT (Purchasing Education and Research for European Competence Transfer) deals with the purchasing competence assessment tool (PCA) that allows individuals to assess their skills and competences in the field of PSM. It is applicable for PSM practitioners and also for students in academia who want to assess and compare their current skill levels against sector and job level benchmarks.

The tool is readily available for everyone who is interested at <http://supplycompetence.com/> and user guidance is provided in this document. After registration, the user can see that the PCA tool consists of 6 sections, each of which consist of a set of multiple choice questions that aim to cover a range of different PSM related activities. These are; supplier management, controlling, purchasing involvement, interpersonal skills, human resource management and planning and strategy. After completing the questions, the user receives both numerical and written feedback for every section. The written feedback also contains hints for further studying, at a glance "take this message home with you" type of brief awareness about the topic, and further learning and development opportunities, which are provided in a supportive and constructive manner.

The tool was developed by project Perfect partner organisations, led by Lappeenranta University of Technology. The written feedback sections in particular were formed in collaboration across the partnership, adding to the high quality of the tool. Previous IOs (IO1, IO2 and IO3) provided the view on existing literature, deeper insights collected from empirical research, and finally, background data of the tool which gave benchmark values for every type of user. Since the objective of this project is to really understand what matters to purchasing professionals regarding skills and competences, the project team trusts that this high-quality tool will be of considerable benefit to its audience. In particular, the tool is empirically and scientifically supported, as it uses the detailed survey questions developed in a previous IO2 as the basis for its assessment in different PSM activity areas. The PERFECT project has been fully integrated, with different IOs feeding into each other, to ensure that findings from one area inform others and benefit from, for example, wide data collection and analysis. Unlike many assessment tools, which are based on what the developers feel is important, the PCA tool is

based on a range of academic and practitioner literature, interview data with a wide range of PSM practitioners and a significant survey of PSM practitioners across Europe.

2. Introduction and Structure

This paper deals with the fifth Intellectual Output (IO5) of project PERFECT (Purchasing Education and Research for European Competence Transfer). The aim of this part of the project was to create a purchasing competence assessment (PCA) tool for Purchasing and Supply Management (PSM) practitioners to self-assess their PSM skills and competencies in a variety of PSM related activity areas and obtain feedback on how they compare to a range of benchmarks.

The approach, the process and the tangible output that was developed in IO5 are outlined in this paper. After an introduction to the PERFECT project, an insight into the methodology and how the tool quality was assured is provided. A series of findings divided into current and future competences received from the previous intellectual outputs (IOs) of this project serve as key inputs for the assessment tool, ensuring that it is empirically and scientifically supported. The findings are further broken down into how these competences can be compared according to a number of different and pertinent characteristics, such as explicit and tacit competences, differences between business sectors and industries, job roles and the overall work and cross functional experience of PSM personnel.

Each of the sections of this white paper contains a set of data driven findings, their adjustments in the development of the tool and then a discussion focusing on the key elements of the tool and its creation process. The paper concludes with a consideration of the impact of the tool on the skills assessment, as well as the impact on practice, incorporating future requirements for training methods.

2.1 Background – PERFECT project

The project PERFECT was set up in 2015 and is funded by the European Union from 2015-2018 to establish an empirically validated pan-European PSM higher education curriculum, the first worldwide region to do so.

The value of the project is manifold and builds on current and future challenges in practice and academia. The PSM function in any organisation is a key contributor to firm performance (Drake, 2012), as more than half of the total turnover of a modern industrial firm in Europe is directly transferred to suppliers (e.g. Van Weele, 2010). Moreover, the bulk of supplies is now no longer of domestic origin, but of a European and international nature. As this network economy with a low depth of production and high reliance on international suppliers is a recent phenomenon that has emerged in the last two decades, firms are still struggling to find effective and efficient ways to cope with these circumstances (e.g. Van Weele and Van Raaij, 2014). This highlights the need for employees possessing the necessary skills and competences in this field.

Although buying organisations are increasingly dependent on their international suppliers, many of them lack the capabilities to deal with these dependencies. A root cause of this struggle is a lack of access to personnel with PSM knowledge and PSM skills. Despite this importance, unlike other disciplines such as marketing or finance, PSM does not yet have any standardized PSM higher education curriculum. This issue is seen at national, European and regional/international (e.g. North America) levels and means it is necessary for organisations to hire university graduates with other specializations and then often spend years bringing them up to a skill level that graduates in other disciplines already possess.

For practitioners, a significant challenge lies in finding skill gaps and matching them to their course portfolio during training development. To help with this skills assessment, project Perfect offers a significant opportunity to the European Union: It provides a PSM skills assessment tool that is openly available, with free registration, which was developed using data and information that have been scientifically collected and analysed in different parts of the project PERFECT.

The question addressed by this IO is what kind of empirically based PSM skill assessment tool could be put together. The tool developed will be implemented by the participating universities in the project, but simultaneously it will also be disseminated through a range of relevant associations and also to the extensive contacts of the project members and thereby available to any interested individual in Europe.

The development of the PSA tool has been informed by and used the outputs from the project's other IOs, which are as follows:

- [IO1] The project started with an in-depth **theoretical analysis** of PSM, reviewing different sources such as
 - Academic and practitioner literature dealing with PSM skills
 - European PSM educational landscape
 - PSM Job adverts
 - Studies on trends and future requirements for PSM
- [IO2] In addition to the desk based literature review, the project conducted **Case Study interviews** with industry PSM practitioners in a range of job roles and organisation types to identify the required skills and competences to cope with current requirements and future trends.
- [IO3] The insights gained were validated and developed further by a **survey** with European firms in order to identify those skills and competencies that distinguish successful companies

and effective and efficient PSM, which link to performance outcomes and future requirements. Moreover, this provides a comprehensive and systematic analysis of skills and competences needed to be covered in the curriculum.

- [IO4] Based on the skills and competencies identified in the first three IOs PERFECT has also designed the first every pan-European **PSM curriculum**.
- [IO5] In order to promote fast and broad dissemination, PERFECT has developed an **assessment tool (PCA)** for PSM skill evaluation
- [IO6] In parallel with the **PCA tool**, the project team has prepared an Introductory **Massive Online Open Course (MOOC)** for basic PSM skills, which can be used by students and organisations to gauge the levels of the PSM skills.

These six IOs, were supported by additional project activities for the management of the consortium, and communication, dissemination and exploitation of results. Figure 1 identifies and shows the linkages between the six different IOs:

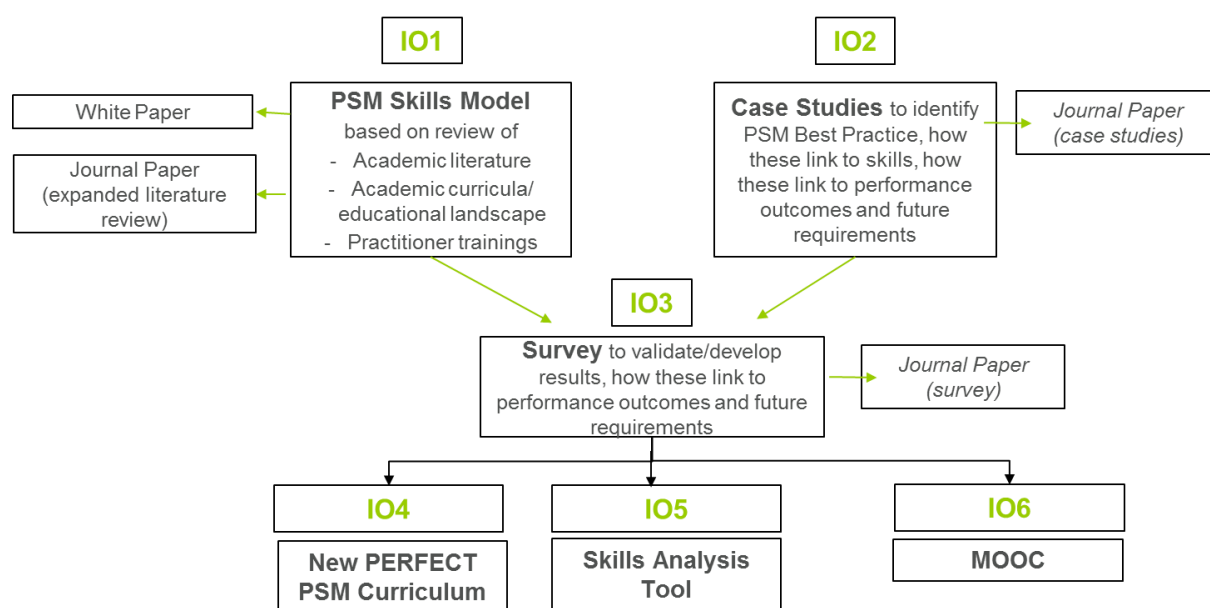


Figure 1: PERFECT IO links (own illustration).

A range of institutions have been involved in the project, all of which have a very strong background and international network in PSM. This pan-European approach ensures that students in future will be able to pursue their curricula on European-wide basis, giving them the early international exposure ideal for later careers in the PSM field. The overall IOs with their respective institutional leads can be seen in Figure 2 below. In addition, the project has been supported throughout by an advisory board, made up of both academics and practitioners whose feedback has been gathered on different aspects and outputs of the project as required.

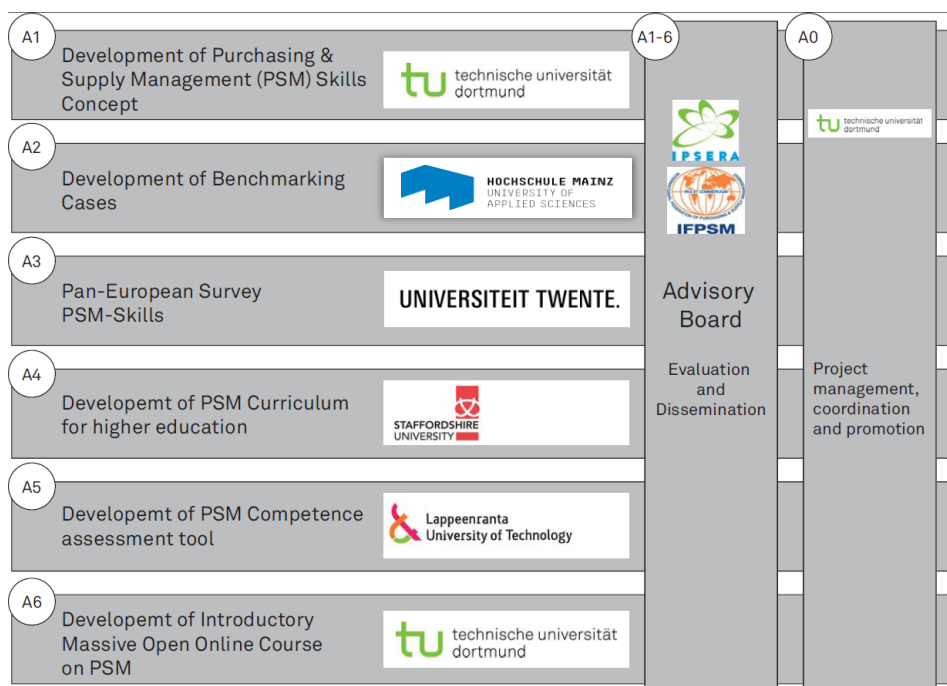


Figure 2: PERFECT Packages and Institutional Leads (own illustration).

The topic of this white paper for IO5 concentrates on the PCA tool, and this work package is led by Lappeenranta University of Technology (LUT). The IO5 core team consisted of Prof. Dr. Jukka Hallikas (IO5 Lead) and Elina Karttunen, both from the Lappeenranta University of Technology, Dr. Stephen Kelly from Staffordshire University, Laura Berger from the Technical University Dortmund, and Heike Schulze from Hochschule Mainz –University of Applied Sciences. Questions regarding the IO5 whitepaper can be sent to jukka.hallikas@lut.fi.

2.2 The content of white paper 5

The following section contains a summarised methodology of how the IO5 work was designed and how the data was obtained, analysed and reutilized for the tool. Further details on the in-depth process description are available upon request from the PERFECT project team, but this document contains the most valuable insights of this work.

The white paper begins with Executive Summary for rapid conclusions of this working package IO5 and its outputs. Introduction section describes project background, the brief overview on the content of the document, as well as motivation, scope and purpose of the PCA tool. The following section discuss the PCA tool design, starting from inputs gathered from previous working packages. Assessment framework collects these insights, followed by technical tool description, and description of development process. User manual of the tool is provided here in this white paper 5. Sustainable over

time impact of the tool is pondered at section 5, and finally there are concluding remarks, references and appendixes. Appendix includes the written feedbacks of the tool.

2.3 Motivation for, and scope and purpose of the purchasing competence assessment tool

Motivation. As discussed earlier, the overall research objective of project PERFECT is to develop an empirically based PSM higher education curriculum that reflects the current needs of PSM practitioners and prepares them to deal with future challenges. Previous project results are channelled into IO5 and the insights gained are made available via other project whitepapers. Research quality during the project (credibility/internal validity, transferability and generalizability/external validity, dependability/reliability and confirmability/objectivity) was assured by the use of a number of specific techniques based on the research guidelines of academics. For each major project phase, preparation, implementation, follow-up and dissemination, the respective measures to be taken were defined upfront during March/April 2016, and then continuously reviewed and refined over the course of the data collection and its application. In order to achieve all objectives, a consortium with the five project partners and advisory board has been formed, which brings together leading universities for tool creation (see Figure 2)

Scope. The focus of the PCA tool is on the breadth and importance of competences covered, the differences between competence types and variations between certain case demographics, such as job role and work experience, as well as type of organisation. Establishing the relative importance of different competences is, of course, a worthwhile endeavour and one that the PERFECT project had been dealing with in the work of IO3, which is a large-scale survey of PSM practitioners.

Purpose. The purpose of the PCA tool is to provide individuals with the opportunity to self-assess their PSM skills and competencies in a range of PSM related activities. This makes it necessary for companies to hire university graduates with other specializations and often spend years bringing them up to a skill level that graduates in other disciplines already possess. For students, a significant challenge lies in finding appropriate university courses and matching them to their course portfolio during their studies. For the higher education institutions involved, the varying course contents and depth in exchange programmes hinder a stringent teaching of basic modules first, and then building on them further for PSM. The PCA tool helps find the right areas of training, and advise proper content for learning.

3. Purchasing Competence Assessment tool design

This section covers how the tool was developed, with a specific focus on how it has been based on the existing empirical knowledge developed in the other IOs of the project. It shows how the tool has incorporated a wide range of both current and future competencies that result in a scientifically validated way of assessing individual competencies in specific areas of PSM.

Section 3.1 discuss the various inputs to the tool in detail and starts by using the results of previous IOs to establish the current competencies required by PSM practitioners and ranks them in order of importance. Each individual sub-section of IOs contains a set of findings generated from the empirical data and then a brief discussion of the key points and how they have provided inputs and insights for the tool. After discussing the various inputs, the competence assessment framework is shown to provide the background to the user guides that follow.

3.1 Inputs to the tool from IO1, IO2 and IO3

3.1.1 IO1 An initial desk based skill investigation

The main findings of IO1 were the identification of a series of relevant current and future competencies and skills generated from a detailed analysis of the academic and practice literature and then group these according to the supply management maturity model developed by Schiele (2007). This model is divided to 5 dimensions, including planning and strategy, organisation and structure, processes, human resources and leadership, as well as controlling. Sections of the tool provided in IO5 follow this structure to a large extent, for instance, with the naming of sections of the tool such as planning and strategy, human resource management, controlling. Doing this provides a coherent and robust structure of different areas of PSM and show that these areas would be found in organisations that demonstrate PSM maturity.

The skills that were found in different sources (academic literature, job ads) were included in the maturity model in order to structure and cluster them. Skills that were recognised as high importance in IO1 were applied to the survey in IO3, and were thus included also as initial items in the IO5 tool. The following skills were regarded as of high importance in IO1 (see Table 1). The ranking was down by the researchers on IO1 and relate to the frequency in which they were found in the relevant literature.

Negotiation skills (28)	Time management (11)
Analytical skills (24)	Written communication (11)

Problem solving (22) Leadership (20) Change management (19) Risk management (19) Decision making (18) Cost analysis (17) Project management (17) Interpersonal communication skills (16) Supplier relationship management (16) Conflict management (15) Teamwork (15) Strategic thinking (14) Creativity (13) SCM (13) Technical knowledge (13) Quality management (13) Contract management (12) Customer focus (12) Blueprint reading (11) Finance knowledge (11) Product knowledge (11)	Effective communication (10) Organisational skills (10)
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Table 1: Skills that are subject of attention.

3.1.2 IO2 (interviews with PSM practitioners)

IO2 used qualitative data through the use of structured interviews, to obtain a full and deep understanding of which competencies and skills were required by a range of PSM practitioners in different industry settings and organisational levels and job roles. A sampling strategy for the case companies was deployed that covered the following organisational characteristics and allowed for the widest possible perspective of different organisational requirements. A range of industries was included in the study to hear their views on PSM's current and future knowledge requirements across their clients; both lower and higher external value added characteristics, two major consultancies, geographical spread (in order to not overemphasize one particular national culture), and conventional (i.e. commercial) business models as well of social businesses (to challenge current PSM conventions).

This yielded a total of 12 focal case companies (incorporating both buyers and suppliers as one dyad; counting suppliers additionally, this amounts to 16 companies included in total) and 46 interviews. The data collection took place from June to October 2016. Originally, data collection was planned from

June to August 2016, but due to the very positive response from the contacted firms, it was extended until October to allow more case companies to be covered in the study.

The central findings on current key competencies is that employees in PSM should possess both operational and basic skills for PSM such as “Negotiation”, “Strategic Sourcing” or “Basic Knowledge on PSM Roles and Processes”, and also skills related to communication or those that are relationship-oriented like “Interpersonal Communication”, “Communication Skills” or “Stakeholder Relationship Management”. These mix of skills and competencies are both ‘explicit’ and ‘tacit’ in nature and reflects the complexity of modern PSM practice. In addition, it also reflects the picture of PSM being the link or the agent between internal customers and their requirements (e.g. product requirements, financial requirements), with the responsibility as a function to source what the company needs in the most effective and efficient manner, alongside the need to maintain valuable and productive relationships. Being the interface between internal and external stakeholders reinforces the need for PSM practitioners to act as network agents. In this context, the high rankings of “Interpersonal Communication”, “Conflict Resolution”, “Communication Skills” can be explained. In addition, this also underlines the PSM definition followed by PERFECT throughout the project timeline: PSM comprises the management of external inputs – materials, services, capabilities and knowledge – that are required for building, running and maintaining the focal firm’s processes, while simultaneously managing the external and internal stakeholder network with an extended upstream supply network understanding. Figure 3 shows the Top 10 current key competences by number of codings (frequency) in the interview transcripts.

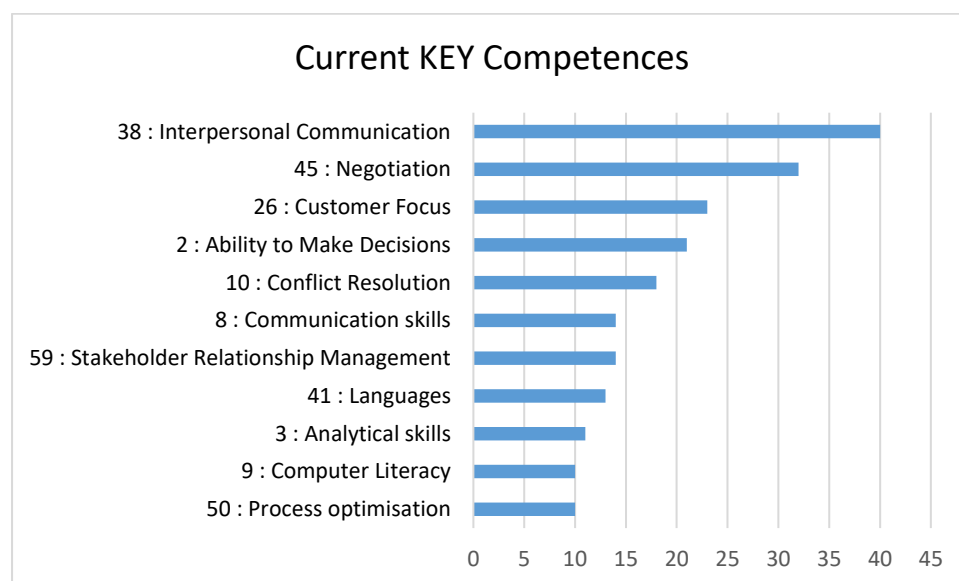


Figure 3: Current key competences from case studies.

To ensure that the results of the project were future proofed as far as possible, the participants in IO2 were also asked about what future competencies they believed would be important for PSM practitioners. This resulted in the list shown in Figure 4 and highlighted the key roles that “Sustainability” and “Digitisation” (as confirmed by the numbers of codings) will also play in the future. For “Digitisation”, some knowledge areas and competences were specified (mainly analytics), but uncertainty on the character and impact of “Digitisation” and “Sustainability” in the PSM field and the required competences was also expressed in the interviews and provides future research opportunities. Although the correlation with competences that also were given a high priority in future PSM, like “Holistic Supply Chain Thinking” or “Strategic Thinking”, might give an indication on the skills model further defining “Sustainability”.

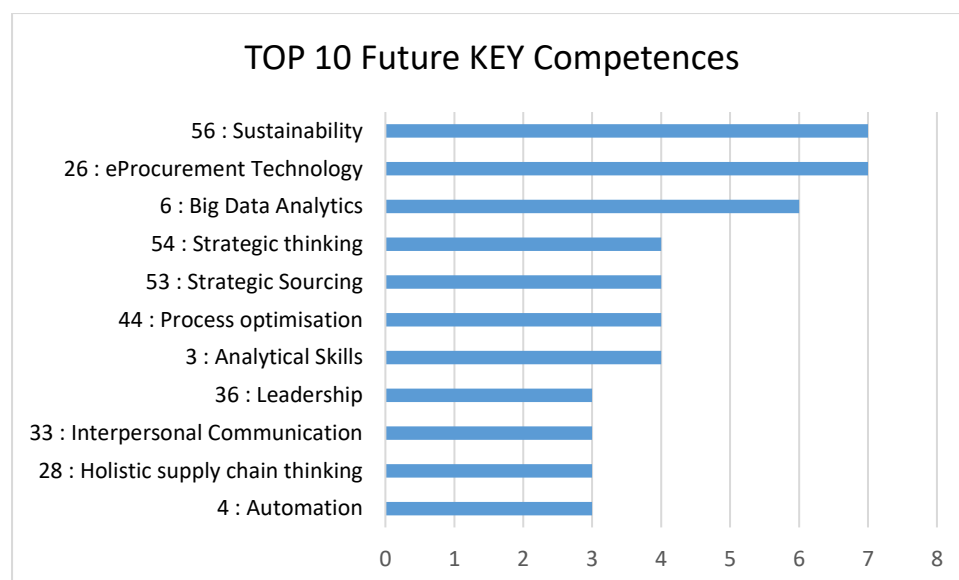


Figure 4: Top 10 Future Key Competences by Number of Codings

3.1.3 IO3 A survey providing background data for the tool

To identify which competences PSM practitioners identify as being currently necessary for them to demonstrate in order to meet their organisational objectives, the researchers in IO3 developed and then disseminated a survey. The questions of the survey asked respondents to discuss the goals they had in their jobs and which they were rewarded for, and the competences that helped them to be successful in their jobs. It has to be noted that this gives an indication of what competences have been appreciated and emphasized by the respondents, but should not be over-interpreted as a full ranking of relative importance.

The survey had 581 responses by November 2017, although the published White Paper is based upon n=516, which was the dataset that was taken at its time of writing in September 2017. Participants

came from three sectors: Industry (35%), Service (35%), and Public Procurement (30%). Juniors (40%), seniors (45%) and executives (15%) filled out the survey. Therefore, the PCA tool could collect benchmark values for every item divided by sector and job level (whether junior, senior or executive).

The key findings of the survey, were that 44 of the 88 skills were associated with one or more success factors. The top-10 self-ranked competencies (as shown in the table 2 below) consists of a mix of explicit knowledge and soft skills/tacit knowledge. It means that the most rounded and effective purchasing professional has strong interpersonal communication abilities combined with strong technical and subject understanding.

TOP-25 -Participants' ranking of their self-assessed 'Competency for the task' and their perception of the 'Importance of the task' n=516; 5-point Likert-scale (1 is lowest and 5 is highest)							
Competency for the task	Mean	Std. Deviation		Importance for the task		Mean	Std. Deviation
1	Honesty	3,84	,606	1	Honesty	4,32	,815
2	Loyalty	3,76	,653	2	Communication Skills	4,19	,824
3	Purchasing Knowledge	3,75	,947	3	Social Manners	4,16	,825
4	Problem Solving	3,65	,739	4	Proactivity	4,15	,782
5	Willingness to Learn	3,62	,670	5	Customer Orientation I	4,15	,966
6	Social Manners	3,62	,723	6	Loyalty	4,14	,856
7	Proactivity	3,62	,745	7	Stakeholder Relationship Management	4,14	,992
8	Conscientiousness	3,62	,680	8	Problem Solving	4,14	,771
9	Result Driven	3,59	,761	9	Customer Orientation	4,09	,922
10	Customer Orientation I	3,59	,806	10	Result Driven	4,06	,798
11	Customer Orientation II	3,54	,881	11	Networking	4,05	,861
12	Communication Skills	3,53	,779	12	Willingness to Learn	4,01	,867
13	Handling Complexity	3,53	,749	13	Conscientiousness	4,01	,849
14	Adding Value to the Organisation	3,52	,889	14	Handling Complexity	4,01	,806

TOP-25 -Participants' ranking of their self-assessed 'Competency for the task' and their perception of the 'Importance of the task' <i>n=516; 5-point Likert-scale (1 is lowest and 5 is highest)</i>							
Competency for the task	Mean	Std. Deviation		Importance for the task		Mean	Std. Deviation
15	Advice Skills	3,52	,910	15	Purchasing Knowledge	3,93	,936
16	Evaluation of Offers	3,51	,958	16	Advice Skills	3,91	,954
17	Organisational Position Purchasing	3,46	,908	17	Self-Assurance / self esteem	3,91	,791
18	Request for Quotations	3,46	1,088	18	Persuasion	3,90	,868
19	Team Ability Skills	3,45	,836	19	Empathy	3,85	,897
20	Process Management	3,44	,926	20	Team Ability Skills	3,85	1,006
21	Optimisation of Processes	3,44	,994	21	Adding Value to the Organisation	3,84	,986
22	Stakeholder Relation Management	3,44	,891	22	Poise	3,84	,810
23	Empathy	3,43	,808	23	Conflict Resolution	3,79	,919
24	Networking	3,43	,857	24	Organisational Position of Purchasing	3,78	1,056
25	Self-assurance / self esteem	3,39	,753	25	Evaluating Offers	3,78	1,114

Table 2: Survey results summary.

The results of IO3 were synthesised for use in the tool and rephrased for the tool, asking a user to fill out their own competence level in given questions. The reference value is the importance rated in a survey by the survey respondents benchmark group. For instance, junior, senior and executives collected different preferences of top skills. This knowledge was crucial when building up a PCA tool that could take into account the diverse backgrounds of users. An example of the benchmarking aspect of the tool is shown below and identifies the key competencies in relation to different organisational levels of a PSM professional.

	Junior	Senior	Executive
1	Honesty	Honesty	Purchasing knowledge
2	Loyalty	Purchasing knowledge	Optimising of purchasing process

	Junior	Senior	Executive
3	Learning motivation	Loyalty	Supplier relation management
4	Social manners	Conscientiousness	Request for Quotation
5	Conscientiousness	Proactive	Evaluate offers
6	Problem solving	Result driven	Negotiation
7	Proactive	Problem solving	Adding value with Purchasing
8	Customer orientation	Adding value with Purchasing	Position of purchasing in org
9	Purchasing knowledge	Customer orientation	Problem solving
10	Result driven	Advice skills	Supplier evaluation

Table 3: Junior, senior and executive top skills.

The findings of each of the previous IOs are wide ranging and detailed in nature and they all have their own white papers and associated documents, which can be found at the project PERFECT website (at <http://www.perfect.lfo.tu-dortmund.de/category/project-results/>). However, the table that follows summarises the key findings from IOs 1, 2 and 3 and shows specifically how they have informed the development and implementation of the tool.

Key finding	Recommendation for implementation of tool
CURRENT COMPETENCES	
A mix of competence areas is required to be successful as a buyer or manager in PSM	The PCA tool should include both operational or basic skills for PSM such as “Negotiation”, “Strategic sourcing” or “Basic knowledge on PSM roles and processes” and, secondly, skills related to communication or that are relationship-oriented like “interpersonal communication”, “communication skills” or “Stakeholder relationship management”.
In a number of instances, a link between these competence areas was stressed (like “Good negotiation requires solid communication skills”).	The PCA tool cannot cover all aspects of skills but reaches in a rough level all necessary aspects.

Key finding	Recommendation for implementation of tool
<p>Tacit knowledge is more difficult to share than explicit knowledge, as it is less codifiable and is consequently more difficult to articulate. Therefore, knowledge sharing between individuals and within a function needs to reflect the high importance of tacit PSM competences.</p>	<p>This means that aspects of socialisation such as mentoring and buddying need to be integrated into work practices to ensure that tacit knowledge can be articulated and shared in the most effective manner. The PCA tool should integrate this aspect to its content.</p>
<p>“Supplier Management” was not listed in the Management role, but was specifically in the Operative.</p>	<p>This is not necessarily surprising, as it is more of a day-to-day task of sourcers to focus on direct dealings with the suppliers of the organisation. However, it is suggested to those in a Management role, whilst, of course, focusing on “Leadership”, etc., that the key aspect of “Supplier Management” is not overlooked. Continued dealings with suppliers would ensure that those in Management roles maintain a close link to the supply market and current and future challenges that may arise. Therefore, in the PCA tool, Supplier Management has its own section of questions.</p>
<p>There is a lack of emphasis for “Analytical Skills” in the 3-5 years of total work experience category.</p>	<p>This suggests that it is an area that needs to be focused on in HE curricula and also through in-house training programmes, as it is deemed highly important in all the other categories (apart from the 35 years and over category). Thus, analytical skills are highly important for juniors also, which the tool identifies.</p>
<p>“Holistic Supply Chain Thinking”, “Basic knowledge on PSM role and processes” and “Cross-functional abilities and knowledge” are consistently emphasized as explicit competences across all ranges of work experience.</p>	<p>These need to be firmly embedded in the PCA tool to ensure that the areas are reflected in the training needs that are being proposed to the users. Similarly, these areas can be reflected in early stage in-house training of organisations and they should be maintained throughout an individual’s career.</p>

Key finding	Recommendation for implementation of tool
“Sustainability”, “Negotiation”, “Stakeholder Relationship Management”, “Business Acumen”, “Interpersonal Communication” and “Strategic Thinking” are consistently emphasized as tacit competences across all ranges of work experience.	These are core areas that are going to be required across a PSM career, and the PCA tool makes use of these insights.
“Conflict resolution” becoming more of a focus later in a PSM career.	This is included as a competency in the PCA tool.
“Communication” is seen as a key area, but this is not reflected in the early stage of the PSM career.	This could be an area that warrants a particular focus on its development in all levels of career settings.
“Product Knowledge” was only emphasized at Automotive, Chemical and Electronics organisations, with actually no mentions at Construction and Social Services organisations.	Regarding “Product Knowledge”, the project team can consider how to make this something that covers both physical and service goods, especially considering that with increasing digitization physical components of a product might be substituted by a service (e.g. download instead of transport is already common today). Product knowledge is different depending on the sector, which the PCA tool differentiates (public, service, industry).
Although “Strategic Thinking” was emphasized by 8 out of 12 firms, not everyone appreciates it.	For the tool, “Strategic Thinking” is an important competence to keep in mind and holds potential to be jointly developed together with other competences, such as the aforementioned “Holistic Supply Chain Thinking”.
“Interpersonal communication”, “Communication skills”, “Negotiation”, “Sustainability” and “Analytical skills” were equally important for both key account managers and PSM professionals.	This provides support from the supplier’s point of view (as identified in IO2) that these competences are particularly relevant and applied to the tool content.

Key finding	Recommendation for implementation of tool
Competences emphasized by interviewees with cross-functional experience were “Communication Skills”, “Process Optimization”, “Product Knowledge” and “Strategic Sourcing”.	As “Cross-functional abilities and knowledge” in any case have appeared as an emphasized competence throughout the IO2 analysis, to bring this topic into the tool is seen as very useful. How to develop it through training (e.g. by computer-aided business simulations) should be further analyzed in coming research attempts.
FUTURE COMPETENCES	
“Sustainability” and “Digitization” were indeed mentioned as the main future impact areas for procurement.	<p>A breakdown of knowledge and skills for digitization is needed to prepare students adequately for this future development. Which competences stand for “Automation” or “Big data analytics” in the PSM context?</p> <p>A breakdown of knowledge and skills for sustainability is needed to prepare students adequately for this future development. Which competences stand for “Sustainability” in PSM?</p> <p>The correlation with competences that also were given a high priority in future PSM, such as “Holistic supply chain thinking” or “strategic thinking”, might give an indication on the skills model further defining “Sustainability”.</p> <p>When competences are defined for those two areas, appropriate assessment methods need to be developed. This is also valid for corporate training – how to train PSM personnel or maybe even re-educate people that need to change their jobs.</p>
“Communication skills” and “Negotiation” were also emphasized as future competences.	The profile that practitioners need to be prepared for gets a broader scope and includes a big part of tacit knowledge, but also parts of explicit skills especially when talking about digitization. This is a note for the PCA tool.

Key finding	Recommendation for implementation of tool
More explicit than tacit competences are emphasized for the future.	Though the shift in emphasis between explicit and tacit competences may partly be explained by how much easier it is to articulate knowledge of an explicit dimension, there is an opportunity for explicit based training (both in-house and in education settings) to be developed and delivered. However, the prerequisite is to first individually detect the deficit in these competences with the PCA tool.
The emphasis on “Creativity” and “Cross-functional abilities and knowledge” seems to particularly relate to those industries that are more service-dominated (construction and social services). How to create value across different functions seems to be emphasized.	In light of that, the earlier mentioned physical versus service product basics and cross-functional approaches are re-emphasized also in the tool by allowing the user to choose the sector (service/industry/public).
The consulting interviewees were the only ones to emphasize “Customer Focus”, “Innovation Sourcing” and “Leadership”.	Depending on their position, a practitioner needs different levels of leadership and focus on innovation, thus a user can distinguish between these depending on whether they work at the junior, senior or executive level.
“Cultural Awareness” was highlighted by the automotive industry	For the curriculum development, this emphasizes how the “Cultural Awareness” should be raised, e.g. by covering basics of cross-cultural management in the tool.

Key finding	Recommendation for implementation of tool
Stronger emphasis on “Openness”, “Process Optimization”, “Strategic Sourcing” and “Supplier Management” of interviewees with cross-functional experience.	Promoting “Openness” could be fostered by covering a rather broad range of potential options as to how to approach a certain problem in a course and/or actually change the scenario during the course by unforeseen events (such as a main stakeholder in another function leaving the firm, or a new IT manager proposing a new automation software, just when the student team has figured out the manual process...) in order to increase tolerance for dynamic changes. “Process Optimization” could perhaps be combined with it, but not necessarily, as it could also be grouped with learning about certain techniques related to it when covering the basic PSM processes (e.g. introducing process flow analysis, Ishikawa/Fishbone Diagrams, Pareto Analysis etc.).

Table 4: Main findings of IOs 1, 2 and 3 and the related recommendation for the tool derived from findings.

3.2 Assessment framework

As many people do not really have a view of what PSM actually does , in terms of the variety and complexity of activities in the different PSM roles and also how much value effective and efficient PSM can deliver to organisations. Using the previous IOs of the the project, the tool development followed a holistic view on PSM professionals, in that they are also strategically important for their organization and this is why there is a wide range of competences in the tool. Survey in its entirety content provided

The competences and skills included in the PCA tool are based on the previous work of IO1, IO2 and IO3.

material for the PCA tool.

To provide a coherent and relevant structure to the tool, it is divided into 6 sections as follows: planning and strategy, purchasing involvement, supplier management, human resource management, and controlling and personal skills (see Figure 4). The user experiences the full competence assessment exercise when each of these sections are completed. Each section is based on the findings

from the empirical work and literature reviews that have been done by the project group, described in more detail in the inputs section. After completing the assessment tool, each user gets written feedback for the sections, which identify areas for development and further reading and sources that participants will find useful. Feedback for each section are in the Appendix, where interested readers can find them for further reference.

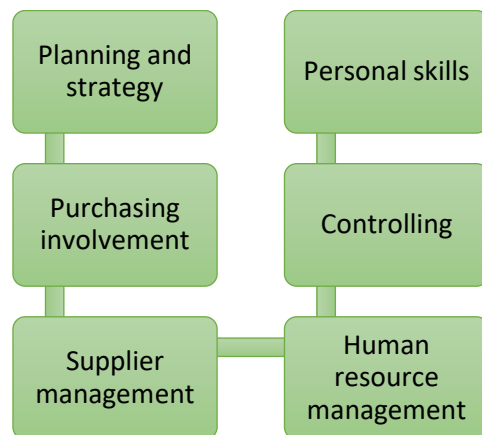


Figure 5: Assessment framework.

3.3 Technical tool description

The PCA tool has been established using the WordPress-homepage tool and additional coding from the service provider. The tool will be hosted until August 2023 (at least). Lappeenranta University of Technology is responsible for maintaining the tool.

3.4 Development process of the tool

The development process of the tool actually took place in 2017-2018. In 2017, the concrete development plan was created by Lappeenranta University of Technology. The first contacts with potential service providers were established well in advance. After service provider selection the work proceeded straightforwardly. The service provider is well-known small enterprise which has excellence in constructing web services.

University of Twente provided data from IO3, which was modified to benchmark values. Items of the tool (questions) were similar to survey questions, in order to provide opportunity to leverage benchmark data from the survey. That is why the actual content of questions in the tool was already known when the survey of IO3 was established. However, there was lots of background work to communicate the needs of the tool to the service provider, and take into account details such as visual interfaces.

The feedback templates that are provided to participants depending on the results of their self-assessment were developed by different members of the project team. To ensure rigour in the development process, each template was then peer-reviewed and iterative further refining of sections took place. Since the project team is very knowledgeable of PSM skills and competencies, as well as teaching issues, they had experience enough to provide advice and hints for further development of each section of skills. The written feedback is attached as an Appendix to this White Paper and the responsibilities of writing feedback and reviewing it are shown in Table 5.

Name of the Tool feedback section	Responsible author	First draft for tool deadline	Peer reviewer	Opponent deadline	Final version ready
Planning and strategy	Staffordshire University	March	Hochschule Mainz	May	June
Purchasing involvement	TU Dortmund		Lappeenranta University of Technology		
Supplier management	Hochschule Mainz		Staffordshire University		
Human resource management	Lappeenranta University of Technology		TU Dortmund		
Controlling	Lappeenranta University of Technology		University of Twente		
Personal skills	University of Twente		Staffordshire University		

Table 5: Responsibilities of feedback sections.

4. Instruction manual of the tool

This section provides guidance in the form of an instruction manual for users of the tool to follow when looking to self-assess their PSM competencies.

4.1 Create profile

Go to the following website www.supplycompetence.com and go to the registration page and create profile. During registration, choose your job level and sector, as follows: Public means public procurement, service stands for services, and industry is left for other users (e.g. those in manufacturing). If you are student or not currently working in a PSM role, the tool can still be used, so select a sector based on your career aspirations. These options can be changed during the assessment, so are not fixed entirely at this point. You will then need to enter your email address and create a password. These activities can be seen in the graphic below (LABEL graphic).

HOME
LOGIN
REGISTRATION

Home > Registration

Registration

This registration is easily done, and it lets you come back to the tool every time you wish to do so. Your responses are not a subject of any further use.

Registration Form

Please fill in the form below to register.

Username *

Workplace sector *

Industry
Service
Public

Working Level *

Junior
Senior
Executive

Email *

Password *

Confirm Password *

Strength Indicator

SUBMIT

4.2 Answer questions one by one

Now you have created a profile, you can then access the tool via the login page using the username and password. Username is different than your email address.

HOME
LOGIN
REGISTRATION

Home > Login

Login

Username

Password

☐ Remember Me

LOG IN

[Register](#) | [Lost your password?](#)

After login, start by choosing the Questions-page and work through the different competencies in each of the sections, e.g. planning and strategy, etc. If you feel that you have no experience or competence for given item, choose 1; if you are feel that you have considerable knowledgeable about

the competent in a given item, choose 5. The attributes of each of the scale items (1 to 5) are shown for guidance in each section.

HOME	QUESTIONS	ANALYSE	PROFILE	LOG OUT
Questions				
1) Planning and strategy		What is your competence for this task? 1= No competence 2= Basic competence 3= Advanced competence 4= Outstanding competence 5= Training others in this competence		
1. Forecasting demand		<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5		
2. Enterprise Resource Planning		<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5		
3. Customer orientation		<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5		
4. Stakeholder Relationship Management		<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5		
5. Pooling Planning and Organising		<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5		
6. Supply Market Analysis		<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5		
7. Supply Chain Analysis and Planning		<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5		
8. Commodity and Domain Specific Knowledge		<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5		
9. Technology planning		<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5		
10. Innovation Sourcing		<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5		
11. Innovation Implementation		<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5		
12. Category strat. developm		<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5		
13. Make or Buy Decisions		<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5		

After you have responded to every item of the tool, click save and you can now move onto the Analyse page (as below).

4.3 Compare numerical values

In the Analyse page, you will receive firstly the numerical evaluation. You might be interested in identifying the gap between the benchmark group (formed from background data of the tool) and your own values. The Gap shows the difference, and written feedback is provided accordingly.

Area	Competence 1-5 (benchmarking average data)	JUNIOR mean (benchmarking average data)	Gap
1 Planning and strategy	1.00	2.40	1.40
2 Purchasing involvement	1.00	2.50	1.50
3 Supplier management	1.00	2.49	1.49
4 Human resource management	1.00	2.18	1.18
5 Controlling	1.00	3.19	2.19
6 Personal skills	1.00	2.77	1.77

4.4 Read written feedback for sections in which you were below the benchmark value

Read your written feedback from those sections in which your gaps are highest. If there are no gaps, this suggests you have developed necessary competencies. Otherwise, use the feedback to develop your skills and competencies and you can also use the MOOC developed by project PERFECT for further training and guidance.

5. Sustainable impact of the PCA tool

The PCA tool will be available for the next five years after completion of project PERFECT and will allow participants to benchmark themselves against the groups of public, service and industry purchasers during this timeframe. At the same time, the profile can differentiate between junior, medium and senior buyer. However, the quantity of available data does not yet allow for further differentiating of these values by the targets of the organisation, for instance a cost, innovation or sustainability orientation.

In the underlying survey these dimensions had been present. They revealed, group by group, significant differences between the profiles. However, the data available for more a differentiated analysis, for instance identifying a profile for junior cost oriented industrial buyers, is not yet available.

Filling-in the PCA tool, users get the immediate benefit of benchmarking their own competence and skillset. At the same time, users will be providing rich data, which can help to improve the tool. For that purpose, participants are asked to voluntarily contribute to the further development of the tool by answering a few questions on their success with the diverse purchasing targets. This data can be analysed and used to improve the tool, allowing, eventually for a more fine-grained benchmark. In this way PERFECT has a chance to develop further and yield longer term sustainable impacts.

6. Concluding remarks

This part of the project has developed a web-based, empirically and scientifically validated measurement tool for assessing PSM competences. With the measurement tool for PSM competences, it is possible to evaluate the competence and skills performance, receive systematic feedback based on benchmark data, and further develop practices related to the PSM profession. The tool is targeted at both students, current practitioners and those interested in entering the profession who wish to assess and improve their PSM competences.

Feedback on a user's performance is shown in an electronic report, which shows the user's performance against different PSM profile performance values. These profile values are set in the

system based on the results of the IO3 survey, depending on job level (junior, senior, executive) and sector (public, service, industry).

7. Appendix

Feedback sections of the tool

Supplier management

Your score on supplier management was lower than that of your reference group, which suggests that there are areas that you can develop. This feedback section provides you with some areas to consider and can be used to improve your skills and competencies in this particular field. You can also use this constructive feedback to take a more in-depth look at some topics and activities involved in supplier management and consider how they relate to your own organisation or one that you have experience of. Sometimes, incremental development can have a substantial impact and provide a starting point for bigger changes. In addition, there is a list of key words to be used when researching about the subject and also some key texts and learning materials that can be used to develop your understanding of the area of Supplier Management.

Why learn more about supplier management?

If you improve in supplier management, you can enhance the relationships with internal customers and also those external ones with suppliers. This allows you to increase the standing and recognition of Purchasing and Supply Management (PSM) within an organisation and the external supply network.

Supplier management is about some of the core strategic activities in PSM (Emmett and Crocker, 2009), covering the interface to suppliers in the source-to-contract process. It includes the specification of requirements needed to define a request for quotation, negotiation and supplier selection, and ongoing supplier relationship and performance management. The selection of new suppliers, based on a clear specification of the required product or service, together with a professional and appropriate negotiation strategy, helps to save costs and to ensure quality and timely delivery. Ongoing supplier management reduces, for example, financial or sustainability risk, and enhances supply security and even potential access of the company to supplier led innovation. An active management of not only financial, but also social, environmental and innovative performance and capabilities of suppliers helps to support the strategic aims and objectives of an organisation. This will also help them to cope with future challenges and successfully communicate with a wide range of different stakeholders.

Having a well-organised approach to supplier management also includes segmenting suppliers (Dyer, Cho and Cgu, 1998) to determine those who you want to form strategic partnerships with. Effective supplier management is also necessary to ensure that an organization presents a united front to the

supply base and that there are no conflicting messages to suppliers from various internal stakeholders. Individual departments may contact suppliers directly with their requirements without fully considering the commercial implications. For example, the quality department may have technical specification considerations or the supply chain department may overly focus on the logistical aspects of supplier delivery. It is also critical to ensure that the roles and responsibilities within PSM are also clarified, i.e. who is responsible for which supplier(s) and what type of suppliers and to act as a single point of contact in the organisation. This PSM-internal and cross-functional alignment enables organisations to steer the supply network as intended, in the most effective and efficient manner.

Take these pieces of knowledge home with you

The PSM function in any organisation is a key contributor to firm performance (Drake, 2012), as more than half of the total turnover of a modern industrial firm in Europe is spent with external suppliers (e.g. Van Weele, 2010). Moreover, the bulk of supplies is now no longer of domestic origin, but of a European and international nature. PSM plays a key role in spanning these organisational boundaries and establishing the link between internal customers and the supply network, with the responsibility to buy what the company needs in the most effective and efficient manner, and, in doing this, to maintain beneficial and appropriate supply relationships.

Take a closer look at the situation in your industry and in your organisation or one which you are familiar with. What does the supplier portfolio look like? Where are they located? What are the risks and opportunities related to some products or services that are bought, and which suppliers are involved? How do you ensure successful and long-term relationships with the most important suppliers?

To ensure that there is clear supplier segmentation, one approach can be to combine the Kraljic (1983) matrix, also known as the strategic sourcing portfolio, with a similar matrix for suppliers (Wildemann, 1999). Depending on their supply risk (high, medium or low) and supplier development potential (high, medium or low) suppliers are categorised into being strategic suppliers (e.g. high/high), core suppliers, bottleneck suppliers and standard suppliers (low/low). When these matrices are combined, it becomes clear that, for example, in the case of strategic materials sourced from strategic suppliers, a strategic partnership approach should be considered (Wildemann, 1999). A professional supplier management approach that is aligned with the strategic goals of an organisation and the implementation of supplier management tools and processes can help prepare for future challenges, such as resource scarcity, climate change impacts (Bals, 2012) or digitization. A key success factor is

to select and retain purchasing professionals with the suitable skills and competencies to ensure that this happens.

Useful keywords to search with and learn more about the topic

- Supplier segmentation
- Supplier development
- Supplier evaluation
- Innovation sourcing
- Supply risk
- Stakeholder relationship management
- Strategic purchasing
- Commodity management
- Sustainable supply chain management

Useful additional sources

Bals, L. (2012). Climate Change's Impact on Procurement: Risks and Opportunities. In: "Managing climate change business risks and consequences: Leadership for global sustainability" Jim Stoner and Charles Wankel (editors). Palgrave-MacMillan, pp. 101-119.

Drake, M. (2012). Global Supply Chain Management. 1st ed. New York: Business Expert Press.

Dyer, J. H., Cho, D. S., & Cgu, W. (1998). Strategic supplier segmentation: The next "best practice" in supply chain management. *California Management Review*, 40(2), 57-77.

Emmett, S., & Crocker, B. (2009). Excellence in Supplier Management: How to Better Manage Contracts with Suppliers and Add Value: Best Practices in Supplier Relationship Management and Supplier Development. Cambridge Academic.

Kraljic, P. (1983). Purchasing must become supply management. *Harvard Business Review*, 61(5), 109-117.

Weele, van, A.J. CollegeTour Purchasing video on Purchasing Process Management at the following link:

<https://www.youtube.com/watch?v=2fbGHsnZaBw>

Weele, van, A. J. (2014). *Purchasing and supply chain management : analysis, strategy, planning and practice*. (6th ed.) Andover: Cengage Learning EMEA.

Wildemann, H. (1999). Das Konzept der Einkaufspotentialanalyse. In *Handbuch Industrielles Beschaffungsmanagement* (pp. 435-452). Gabler Verlag.

Controlling

Your score on purchasing controlling was lower than that of your reference group, which suggests that there are areas that you can develop. This feedback section provides you with some areas to consider and can be used to improve your skills and competencies in this particular field. You can also use this constructive feedback to take a more in-depth look at some topics and activities involved in purchasing controlling and consider how they relate to your own organisation or one that you have experience of. Sometimes, incremental development can have a substantial impact and provide a starting point for bigger changes. In addition, there is a list of key words to be used when researching about the subject and also some key texts and learning materials that can be used to develop your understanding of the area of Purchasing Controlling.

Why learn more about purchasing controlling?

Outdated and inefficient processes obstruct the overall financial performance of an organisation, as well as operational efficiency and may also hinder product development from supplier led innovation in the supply chain. When performance indicators (such as costs, timing, quality of items and the purchasing process itself) are not controlled by Purchasing and Supply Management (PSM) staff, the development and performance of PSM processes may be adversely effected. The follow up and controlling of results of PSM have therefore several consequences for the PSM function and the wider organisation. This can result in the development of robust and appropriate processes that ensure an organisation can maximise the management of the supply base and meet the requirements of its own customers. A thorough understanding of what PSM processes are required to achieve will allow those who work in the PSM function to design them accordingly. Doing this will also raise the profile of PSM in an organisation and allow it to demonstrate its strategic value, as well as providing opportunities to more effectively harness available technologies.

Take these pieces of knowledge home with you

Purchasing controlling activities should be embedded into the organisational structure of the company. Such a control system requires two essential elements:

- 1) A power base: a person must be in a position in which she or he is allowed to control other people, and thus outputs of processes;
- 2) A control mechanism, which is one of the following types:
 - Centralisation is defined as a situation in which decision-making is either carried out by a centralised authority or requires approval of the centralised authority before it is implemented.

- Formalisation refers to regulations, policies, rules and procedures that provide guidelines, objectives and goals.
- Output control is about determining objectives or goals that provide the criteria for decision-making.
- Cultural control refers to shared values and norms that guide decision-making. Strong structures of control may not be necessary when cultural control is already strong. Cultural control is often exercised via informal structures such as shared values inside the working team.

Useful keywords to search with and learn more about the topic

- Key performance indicators
- Cost controlling
- Quality controlling
- Operational efficiency
- Coordination
- Statistical analysis
- Big data analysis

Useful additional sources

A blog covering the role of the purchase order process:

<https://www.purchasecontrol.com/uk/blog/purchase-order-process/>

Professor Arjan van Weele CollegeTour Purchasing video on Spend Management:

<https://www.youtube.com/watch?v=KDO4qC8Uaoo>

Chartered Institute of Procurement & Supply (CIPS) knowledge how-to guide on Purchasing Policy and Procedures:

https://www.cips.org/Documents/Knowledge/Procurement-Topics-and-Skills/5-Strategy-and-Policy/Procurement-Policy-Development/Purchasing_Policy_and_Procedures-Knowledge_How_To.pdf

Benefits of purchase orders for small businesses:

<https://turbinehq.com/2017/benefits-of-purchase-orders/>

Measuring purchasing performance:

<https://www.thebalancesmb.com/measuring-purchasing-performance-2221229>

Leenders M., Johnson P.F., Flynn A., Fearon H. (2007). Purchasing Supply Management (13th ed.).

New York: McGraw-Hill/Irwin

Purchasing involvement

Your score on purchasing involvement was lower than that of your reference group, which suggests that there are areas that you can develop. This feedback section provides you with some areas to consider and can be used to improve your skills and competencies in this particular field. You can also use this constructive feedback to take a more in-depth look at some topics and activities involved in getting Purchasing and Supply Management (PSM) involved and consider how they relate to your own organisation or one that you have experience of. Sometimes, incremental development can have a substantial impact and provide a starting point for bigger changes. In addition, there is a list of key words to be used when researching about the subject and also some key texts and learning materials that can be used to develop your understanding of the area of Purchasing Involvement.

Why learn more about purchasing involvement?

Work in PSM departments is becoming increasingly strategic and cross-functional. Besides managing external relationships with suppliers, PSM is responsible for fulfilling internal needs and, therefore, linking and involving other company functions' processes and objectives. It is important that those who work in PSM understand the main activities, needs and processes in other departments and areas within the company, as purchasers often manage the interface between these different stakeholder groups. They need to pay attention to possible conflicting goals between different departments and those of PSM itself and this is a way of ensuring that PSM can influence decision-making appropriately and, thus, contribute to fruitful cooperation and the overall well-being of the company. In particular, strategic PSM staff need this holistic overview of the organisation and the wider supply chain network.

To be able to foster the involvement of PSM within the company, the position and focus of PSM within the organisation has to be defined and adapted to current needs and aligned with the overall aims and objectives of the organization at a strategic level. For example, so-called maverick buying can be prevented by the involvement and overall strategic provision of PSM in the organisation. Technical knowledge plays an important role for the common understanding of the company's own products and production systems and processes. PSM needs to know how to establish and maintain relationships with a variety of functions within an organization, including; Production/Manufacturing/Operations, Research and Development, Quality Management, Marketing and Sales, Logistics and Supply Chain Management, Human Resources Management and the Legal department.

Take these pieces of knowledge home with you

Disclaimer

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Neither the European Commission nor the project's national funding agency DAAD are responsible for the

The interdisciplinary knowledge of those who work in PSM simplifies the cooperation with other departments and areas. With this in mind, processes can be managed and optimised more effectively and efficiently for the sake of the whole organisation. An example of a PSM involvement opportunity is the product development process, in which the PSM function can mediate between suppliers and the development department from the beginning of product development. PSM can scan the market for innovations, whilst bearing in mind the customer needs, thinking about possible new suppliers and new products on the market. Suppliers can be involved in this development processes at an early stage, but can be effectively managed to ensure that over-specification does not occur. Of course, the technical requirement in this area should ultimately be the responsibility of the research and development departments, but this needs to be balanced with commercial and networking considerations. For example, PSM can ensure that confidentiality agreements are in place, that specifications are developed in a commercially robust manner and that the organization presents a single front to the supply base.

The product development process offers significant opportunities for the involvement of the PSM department. In times of rapid change, the demand for innovation scouting and sourcing, as well as finding the match with internal and external customer will only increase further.

Useful keywords to search with and learn more about the topic

- Functions of a company
- Processes within a company
- Cross-functional collaboration
- Project Management
- Internal interfaces
- Conflict of objectives
- Innovation sourcing

Useful additional sources

Brandon-Jones, A., & Knoppen, D., (2018). The role of strategic purchasing in dynamic capability development and deployment: A contingency perspective. *International Journal of Operations & Production Management*, Vol. 38 Issue: 2, pp.446-473.

Professor Arjan van Weele CollegeTour Purchasing videos on Purchasing Development and the impact of Purchasing on ROI:

<https://www.youtube.com/watch?v=jCZU9OYm5GM>

<https://www.youtube.com/watch?v=ev08w2dIJWA>

Weele, van, A. J. (2014). *Purchasing and supply chain management : analysis, strategy, planning and practice*. (6th ed.) Andover: Cengage Learning EMEA.

The Chief Financial Officers (CFO) best friend:

<http://sfmagazine.com/wp-content/uploads/sfarchive/2008/12/The-CFOs-Best-Friend.pdf>

Rickard Eriksson & Linus Ronnback MSC thesis on purchasing involvement in the product development process:

<http://publications.lib.chalmers.se/records/fulltext/147063.pdf>

Interpersonal skills

Your score on interpersonal skills was lower than that of your reference group, which suggests that there are areas that you can develop. This feedback section provides you with some areas to consider and can be used to improve your skills and competencies in this particular field. You can also use this constructive feedback to take a more in-depth look at some topics and activities involved in interpersonal skills and consider how they relate to your own organisation or one that you have experience of. Sometimes, incremental development can have a substantial impact and provide a starting point for bigger changes. In addition, there is a list of key words to be used when researching about the subject and also some key texts and learning materials that can be used to develop your understanding of the area of Interpersonal Skills.

Why learn more about interpersonal skills?

Interpersonal skills are those that ensure we can interact and communicate effectively with a wide range of individuals and are also a set of personality traits that underpin the way we deal with the contemporary workplace. Both inter and intrapersonal skills are crucial for the modern Purchasing and Supply Management (PSM) professional, as they perform a unique organisational spanning role in ensuring that external resources can be harnessed in an efficient and effective manner. Organisations have become increasingly reliant on their suppliers in order to meet the requirements of their own customers, which are becoming ever more complex, time-dependent and fast moving.

You were asked about the following interpersonal skills, which deal mostly with communicating and dealing with others: advice skills; communication; conflict-solving; cross-cultural awareness; customer-orientation; empathy; networking; persuasion; salesmanship; social manners; stakeholder relationship management; the ability to work within a team.

You were also asked about the following intrapersonal skills that focus more on personality traits from an internal perspective: complexity understanding; conscientiousness; creativity; holistic thinking;

honesty; inventiveness; learning ability; loyalty; problem-solving; personality development; poise; proactivity; self-assurance; risk-taking, being result-driven.

Take these pieces of knowledge home with you

Some of these inter and intrapersonal skills can be developed using more traditional training methods and some of them are personality traits that may require a different approach. Therefore, it is worthwhile to be aware of which inter and intrapersonal skills you might need to work on and discuss them with those in your closer circle (e.g. your friends and family, close colleagues, etc.). You could also ask them how they look at you and what advice they would give you to improve your inter and intrapersonal skills. On a more formal basis, following this, you could discuss your needs for inter and intrapersonal skills development with your manager or your Human Resource (HR) representative. Many organisations use personality trait models (such as Belbin's Team Roles), particularly in relation to team effectiveness and the results of these, if they are done properly, can often provide useful feedback and areas for development. It is also worth bearing in mind that organisations recognize that a mix of personality types are needed for teams to function. The wide range and scope of activities involved in PSM means that there are opportunities to develop your skills by working with others in your team, across functions and also within the wider supply network. Similarly, there are a significant number of free online resources that can be accessed to provide advice and guidance, particularly if you know the areas to focus on. Also, as these interpersonal skills are often required in different functional areas such as Marketing, organisations will often provide company-wide training programmes that may be accessible to all staff, offering a more generic approach.

Useful keywords to search and learn more about the topic

- Personality trait
- Communication
- Interaction
- Influence
- Negotiation
- Personality development
- Creativity

Useful additional sources

Interview with Meredith Belbin:

<http://www.belbin.com/media/1794/tj-07-july-2017-belbin-interview.pdf>

Mehrabian's Communication Theory:

<https://www.businessballs.com/communication-skills/mehrabians-communication-theory-verbal-non-verbal-body-language-152/>

Article on soft skills from Kent State University:

<https://pdfs.semanticscholar.org/ad71/f67180a1a4735872e14905b370392132b58d.pdf>

Blog from Omnia Partners about ten skills all PSM professionals should have:

<https://www.omniapartners.com/blog/ten-skills-all-purchasing-professionals-must-have>

A series of free personality tests:

<https://www.16personalities.com/free-personality-test>

Website about the Myers-Briggs personality test:

<http://www.personalityperfect.com/myers-briggs-personality-test/>

Soft skills for your career guidance:

<https://www.monster.com/career-advice/article/soft-skills-you-need>

Articles from Forbes on ways to increase your creativity:

<https://www.forbes.com/sites/deeppatel/2017/07/30/6-proven-ways-to-increase-your-creativity/>

Seven steps for effective problem solving in the workplace:

<https://www.mediate.com/articles/thicks.cfm>

Human resource management

Your score on Human Resource Management (HRM) was lower than that of your reference group, which suggests that there are areas that you can develop. This feedback section provides you with some areas to consider and can be used to improve your skills and competencies in this particular field. You can also use this constructive feedback to take a more in-depth look at some topics and activities involved in HRM and consider how they relate to your own organisation or one that you have experience of. Sometimes, incremental development can have a substantial impact and provide a starting point for bigger changes. In addition, there is a list of key words to be used when researching about the subject and also some key texts and learning materials that can be used to develop your understanding of the area of Human Resource Management.

Why learn more about human resource management?

An organisation's internal development is a continuous process, and in many cases, the main resource of a firm is its employees' skills, competencies, knowledge and experiences. This resource needs to be managed, not only through education and training, but also by harnessing the full potential of employees. Organisations that take HRM seriously will also maintain and enhance their long-term competitive advantage, since how they manage their workforce has financial performance

implications. This workforce is responsible for implementing innovations and considering the next moves in a competitive environment, so internal HRM plays a crucial role in overall competitive advantage. Executives of a firm in particular and also those responsible for the management of Purchasing and Supply Management (PSM) departments should be knowledgeable about HRM. This is the case even if the organization company has a dedicated HRM department, since HRM is merged into the everyday practices and leadership activities. Employees perform well when they have necessary skills and abilities to do so, when they are motivated, and when they are given the opportunity to perform by their management. Investment of intellectual energy in a task by an employee, and their physical and emotional energy and enthusiasm towards task fulfillment are characteristics which should be present in the everyday working environment.

Take these pieces of knowledge home with you

Jeffrey Pfeffer (2005 cited in Truss, Mankin, and Kelliher, 2012) published a list of 13 best practices in HRM. These are applicable to many industries and situations. Here is list of those best practices for you.

- 1) Offering secure employment reflects a long standing commitment to the workforce and increases the likelihood that they will reciprocate with high levels of performance.
- 2) It is important to select the best people for jobs through a rigorous selection process.
- 3) High wages attract and retain competent and high-caliber staff.
- 4) In order to motivate employees, provide people with the opportunity to share in the financial rewards of organisational success.
- 5) In order to ensure that people perform at their best, they require access to all the information they need.
- 6) Encouraging the decentralisation of decision making and fostering a climate of involvement enhances satisfaction and productivity.
- 7) When there are self-organised teams, this can raise levels of performance.
- 8) Organisations need to have a commitment to training and skills development alongside a recognition of the need to change organisational structures to enable the successful deployment of these skills.
- 9) Enabling people to perform multiple jobs can make work more interesting and be motivational. It fosters the cross-fertilization of ideas.
- 10) Symbols can act as a barrier to decentralized decision making and self-managed teams. Signalling equality amongst the work force through eliminating status symbols such as executive dining rooms and parking spaces enhances communication and empowerment.

- 11) Ensuring that pay variations within the organisation are limited (wage compression) helps foster a climate of a collaboration and enhances performance overall.
- 12) Creating a strong internal labour market helps to foster training and skills development, that encourages participation, and helps promote trust.
- 13) Providing people with their share of financial rewards in their company helps to align the interest of employees with those of the shareholders and encourages a long-term view.

Useful keywords to search with and learn more about the topic

- Human resource management
- Strategic human resource management
- Human resource strategy
- Human resource development
- Staff/Employee engagement
- HRM
- Performance management
- Staff/employee development

Useful additional sources

Carter, J., Smeltzer, L., & Narasimhan, R. (2006). Human resource management within purchasing management: Its relationship with Total Quality Management success. *Journal of Supply Chain Management*, 36(1), 52-62.

Truss, C., Mankin, D., & Kelliher, C. (2012). *Strategic human resource management*. Oxford University Press.

Weele, van, A. J. (2014). *Purchasing and supply chain management : analysis, strategy, planning and practice*. (6th ed.) Andover: Cengage Learning EMEA.

Benefits of applying HRM practices to supply chain management:

<https://www.vlerick.com/en/research-and-faculty/knowledge-items/knowledge/the-benefits-of-applying-hrm-practices-to-supply-chain-management>

Further development of the PSM department:

<https://www.hoeveler-holzmann.com/en/services/procurement-optimization/further-developing-of-the-procurement-department/>

Planning and strategy

Your score on planning and strategy was lower than that of your reference group, which suggests that there are areas that you can develop. This feedback section provides you with some areas to consider

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and can be used to improve your skills and competencies in this particular field. You can also use this constructive feedback to take a more in-depth look at some topics and activities involved in planning and strategy and consider how they relate to your own organisation or one that you have experience of. Sometimes, incremental development can have a substantial impact and provide a starting point for bigger changes. In addition, there is a list of key words to be used when researching about the subject and also some key texts and learning materials that can be used to develop your understanding of the area of Planning and Strategy.

Why learn more about planning & strategy?

Effective and efficient planning and strategy is a key way in which a Purchasing and Supply Management (PSM) function or department can contribute, in a more strategic manner, to the achievement of the organisation's overall aims and objectives. By ensuring that PSM tasks and activities are adequately planned and fit within the overall strategy of the organisation, the PSM function and staff can make a real difference to the performance of an organisation and also raise their profile internally. This is of particular importance given the increase in the scope and scale of outsourcing activities, increasing the organisation's reliance on external organisations, and also the ever increasing technological, legal and social developments that organisations encounter. This increased reliance is also coupled with a developing understanding of how consumers view where their products come from, necessitating increased levels of transparency and governance in the supply chain. Therefore, ensuring that PSM resources are deployed in the most effective manner can be a key contributor to how an organisation can achieve sustained competitive advantage.

These activities can be seen in organisations that demonstrate excellence in PSM and include those which relate to the Strategic Management process, such as:

- the make or buy decision
- developing relevant commodity and category strategies
- managing the supply base and effective supplier relationships
- ensuring that suppliers are integrated in product/service development activities and other PSM processes
- developing suppliers and managing/eliminating costs in the wider supply chain.

Planning and strategy activities are particularly relevant to more senior positions in a PSM function (such as PSM Managers, Directors and Category Managers), although an understanding of them is useful to all levels of the function so that they understand how their day to day and operational activities fit within the context of wider organisational aims and objectives.

Take these pieces of knowledge home with you

Planning and strategy should be embedded into relevant PSM processes and the structure and culture of an organisation, with the assurance of senior manager buy in and support. Longer term and wider perspectives should be taken regarding the whole supply chain, not just immediate/direct suppliers. The aims and objectives of the PSM functions should reflect and be closely aligned to that of the whole organisation.

A key strategic role of PSM is to effectively manage relevant categories and commodity areas, including the sourcing process. This involves input into the initial decision whether to make or buy (i.e. produce the goods or services within your own organisation or get a supplier to perform this for you), then consideration of how purchasing volumes and requirements can be aggregated or pooled and subsequently use of relevant tools, such as Kraljic's portfolio approach, to analyse and inform the approach. It is particularly useful for individuals in the PSM function to develop specialist knowledge of their category/commodity area as this allows them to engage more effectively with their internal stakeholders (e.g. an engineering department) to consider current, as well as future and/or forecast requirements, and also may provide a source of power when dealing with the supply base, particularly in negotiation activities. An ability to review the supply market and select the "best" supplier(s), using a range of relevant measures and criteria, ensures that the most suitable solution can be adopted. Models such as Porter's Five Forces can be used in these stages to assess the forces and tensions in the industry that a supplier operates in and should be used to inform PSM decisions and approaches. Once a supplier has been selected then an appropriate relationship management approach should be adopted, whilst harnessing opportunities for supplier innovation and identifying activities that could be used to integrate suppliers into the processes and ways of working of the organisation as appropriate.

All of these activities should be underpinned by being aligned to overall organisational aims and objectives and also through the effective management of a range of stakeholders that may change over time. Categorisation models such as Mendelow's segments are a useful start point for such approaches.

Useful keywords to search and learn more about Planning and Strategy

Category management, sourcing, supplier innovation, supplier integration, stakeholders, supplier relationship management, supply portfolio

Useful additional sources

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Lintukangas, K., Anni-Kaisa Kähkönen, A-K., Veli Matti Virolainen, V-M. (2013). The antecedents of supply strategy. European Business Review, Vol. 25 Issue: 5, pp.396-410.

Van Weele, A. (2014). Purchasing and Supply Chain Management. 6th Edition. Cengage Learning: Hampshire.

The Chief Financial Officers (CFO) best friend:

<http://sfmagazine.com/wp-content/uploads/sfarchive/2008/12/The-CFOs-Best-Friend.pdf>

Strategic planning in PSM;

<http://www.mypurchasingcenter.com/purchasing/industry-articles/strategic-planning-purchasing-and-supply-management-epoch-vuca-world/>

Chartered Institute of Procurement & Supply (CIPS) document on linking strategy and purchasing:

https://www.cips.org/documents/linking_strategy.pdf