



## Section: PSM Maturity Based Skills Model

The inputs PSM academic literature, job advertisements, practitioner models and future requirements have been used to cluster the PSM skills identified into a PSM Maturity Model (Schiele, 2007) to provide interested parties with a view of what skills relate to a specific stage of development level a purchasing organisation has reached. The skills, that were found in the different sources, were included into the maturity model in order to structure and cluster them.

The model is divided into the 5 dimensions

- Planning and Strategy,
- Organisation & Structure,
- Processes,
- Human resources and Leadership,
- Controlling.

This structure is based on the supply management maturity model by Schiele (2007).

The skills and competences are listed in a table that is structured into the five categories according to the supply management maturity model manually. They are put in the section that fits best, even though a distinct classification is not simple for every item. The matching to the maturity model dimensions often is not clear, as many terms fit into more than one category. Some even do not fit into any specific dimension, they are notes in an additional column.

If a skill was already included, it was not added to the list again but multiple nominations were noted at concerned aspect to be able to consider the weighting in the ongoing and subsequent analysis.

A first matching of skills into the maturity model leads to the following overview:

### **Maturity Model Dimensions and classified skills/competences**

Planning and Strategy	Organisation and Structure	Processes
strategic thinking (14)	add value to the organisation (3)	supply base research (2)
ability to implement business strategies	structure supplier relationships (5)	supplier negotiation (5)
technology planning (4)	change management (19)	supplier acquisition (3)
supplier relationship management (16)	multi-divisional, cross-functional (6)	SCM (13)
manage strategic partnerships (2)	managing internal customers (7)	global sourcing (3)
customer focus (12)	internal negotiation	international buying (5)

business/management knowledge (8)	understand manufacturing systems and processes (7)	IT enabled sourcing
CAD skills (4)	legal, regulatory aspects (6)	passing on/share information (4)
ERP/MRP/APS (7)	category management (5)	blueprint reading (11)
market trends (4)	interdisciplinary understanding (4)	E-procurement (6)
product knowledge (11)	operations management (2)	inventory management (9)
stakeholder mapping/management (5)	enterprise economics (2)	TQM (2)
ethical issues (8)	plant maintenance	supplier evaluation (8)
sustainability (8)	intellectual property rights (2)	research (8)
diversity (5)	INCOTERMS (3)	investigation (2)
corporate governance	technology application (5)	continuous process improvement (3)
social justice principles (2)	procurement systems	six sigma
business management (3)	position procurement in organisation	lean management
materials management (6)	technology know-how (8)	tender evaluation (3)
planning and organising (4)	organisational agility (2)	supplier management (8)
scheduling techniques	manage internal relationships (5)	supplier development (4)
product design	make or buy decisions	negotiation preparation
collaborative partnerships (8)	outsourcing (3)	conduct negotiation (2)
specification development (7)	centralised procurement	international finance
contract management (12)	management information systems	quality management (13)
set objectives	handling complexity (4)	distribution (4)
commodity specific knowledge (3)	foreign currency (3)	transportation (4)
strategy development (7)	product development	storage/warehouse management (4)
market analysis (7)	early supplier involvement (2)	process management (5)
business case development (4)	interdisciplinary qualifications	solicit offers (3)
corporate social responsibility (3)	suppliers linked to IT	evaluate offers (3)
implement policies (2)	alliances (3)	evaluate internal processes
customer relationship management (6)	insolvency law	logistics (3)
best practice knowledge	differentiate strategic and operational	capacity planning
strategic sourcing (4)	guidelines	interface to logistics service providers (2)
contract law (4)	buy integrated solutions	obsolescence management (2)
strategic agility (2)	industry 4.0 implementation	price negotiation
supplier development (4)	assistance systems	contract administration (3)
supply base research (2)	augmented/virtual reality (2)	manage performance (2)
contract development (3)	cloud based computing	accounting (2)
risk management (19)	mobile technologies	claims
holistic thinking (5)	combination procurement + R&D	disposal (2)
target-oriented (3)	sales interface (2)	incoming goods
(open) innovation (6)		project plan
crowdsourcing (4)		business administration
global connectivity (3)		import/export
EU procurement regulations (3)		reverse logistics
demand management (2)		supplier selection (8)

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market knowledge (5)		procurement technology systems
strategic industry management		marketing (2)
results focused (2)		3D printing (2)
category strategy		handle digital information (2)
global citizenship		e-auctions, e-tenders
health		digitalisation (5)
safety		e-business
market intelligence (2)		efficiency
compliance (2)		variable processes
SC design		early procurement involvement in development (2)
SC analysis		standardise processes
trend-setter		internal communication
growth driver		process thinking
scenario analysis (2)		reduction of Maverick buying
SWOT analysis		automation (4)
monitor political developments		internal and external interfaces
growing regions (2)		modelling
outside-in view		understand business conditions (4)
supplier-enabled innovation		contract writing (2)
long-term financial planning		bidding
scarce resources		technical knowledge (13)
global competition		
dynamic, volatile markets		
Knowledge/supply management Items (3)		
manage external advisors		
preparation (2)		
commercial awareness		
sector knowledge		
category management		
PSM tools (e.g. RFx) (3)		
planning & scheduling (4)		
innovation management		

Human Resources and Leadership	Controlling	further
leadership (20)	follow-up (2)	Email system Lotus Notes
time management (11)	target costing (3)	MS Office
project management (17)	cost analysis (17)	SAP
conflict management (15)	cost reduction techniques (2)	MS Navision (ERP)
problem solving (22)	understand computational techniques (5)	PSI (solution production management, logistics)
goals setting (2)	finance knowledge (11)	job experience
teamwork (15)	forecasting (9)	driving licence
salesmanship (5)	analytical skills (24)	mobility

cross-cultural awareness (6)	mathematical skills (5)	social networks
computer and internet literacy (8)	statistics (2)	popular software packages
interpersonal communication skills (16)	data analysis (3)	computer skills (9)
risk taking (9)	benchmarking (4)	computing skills (2)
entrepreneurship (3)	life cycle costing (3)	e-tools
creativity (13)	audit	
curiosity (7)	KPIs (4)	
written communication (11)	measure performance (4)	
listening (7)	reporting (3)	
presentation skills (6)	data management	
stress management (5)	data control	
persuasive (4)	TCO (6)	
multi-tasking (2)	evaluate contractor	
patience (4)	handle big data, smart data (4)	
flexibility (5)	price analysis (2)	
proactive (5)	portfolio analysis	
detail-oriented (4)	critical path analysis	
integrity (5)	financial health suppliers	
continuous learning (5)	information control	
effective communication (10)	quality control	
reading	risk analysis (2)	
decision making (18)	budgeting	
develop oneself and others (5)	supply base analysis (5)	
responsibility (5)	procurement controlling (2)	
support staff (2)	cost controlling	
train staff (3)	cost transparency	
association contacts	early warning systems (2)	
certifications	regression analysis	
prioritise work (2)	predictive modelling	
business conduct standards (3)	spend analysis	
delegate (2)	calculation	
initiation (6)	cost driver analysis	
moderation (2)		
influencing (2)		
self-development		
team building (8)		
trust (2)		
oral communication (5)		
dynamic		
coordination (2)		
intrapreneurship		
language skills (esp. English) (3)		
resilience		

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assertiveness	-	
motivation (oneself and others) (9)		
commitment		
thoroughness		
intercultural competences (3)		
reliable		
open-minded (3)		
inter-disciplinary qualifications		
honesty (2)		
technology capability		
negotiation skills (28)		
professionalism (7)		
adaptability (2)		
networking (5)		
coaching		
expert knowledge		
visualisation		
thinking in alternatives		
discipline		
share knowledge		
openness		
critical thinking		
talents shortage		
selection		
well educated (2)		
credibility		
conceptual thinking		
logical thinking		
abstract thinking		
commercial education		
generalising		
relationship building		
HR management (4)		
self-discipline		
empathy		
quick response capability		
talent management		
skills management (3)		
performance tracking		
common sense		
compromise		
give advice		
extraversion		
interview		

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incentives		
organisational skills (10)		
persuasive (8)		
good appearance		
tactful (5)		
knowledge management		
self-confidence (3)		
technical education		
technical writing (2)		

Table 1: PSM Maturity Based Skills Model (numbers in brackets stand for multiple nominations) based on Schiele (2007)

When putting the skills into this structure, multiple notations of single skills are marked by putting the number of nominations behind the term, so that the relevance of each skill compared to the others is easily visible. A ranking of the skills appearing most frequently shows that negotiation and analytical skills are most important in the wide range of all considered sources, followed by the ability to solve problems, leadership as well as change and risk management and making decisions. Other aspects of high importance are cost analysis, project management and interpersonal and relation-oriented competences like communication, supplier relationship management, conflict management and teamwork.

Ranking: Skills list according to frequency of nomination (only skills with 5 or more nominations):

Negotiation skills	(28)
Analytical skills	(24)
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)

Time management	(11)
Written communication	(11)
Effective communication	(10)
Organisational skills	(10)
Computer skills	(9)
Forecasting	(9)
Inventory management	(9)
Motivation (oneself and others)	(9)
Risk taking	(9)
Business/management knowledge	(8)
Collaborative partnerships	(8)
Computer and internet literacy	(8)
Ethical issues	(8)
Persuasive	(8)
Research	(8)
Supplier evaluation	(8)
Supplier management	(8)
Supplier selection	(8)
Sustainability	(8)
Team building	(8)
Technology know-how	(8)
Curiosity	(7)
ERP/MRP/APS	(7)
Listening	(7)
Managing internal customers	(7)
Market analysis	(7)
Specification development	(7)
Strategy development	(7)
Understand manufacturing systems and processes	(7)
Cross-cultural awareness	(6)
Customer relationship management	(6)
E-procurement	(6)
Initiation	(6)
Legal, regulatory aspects	(6)
Materials management	(6)
Multi-divisional, cross-functional	(6)
(Open) innovation	(6)
Presentation skills	(6)
TCO	(6)
Category management	(5)
Continuous learning	(5)
Develop oneself and others	(5)
Digitalisation	(5)
Diversity	(5)
Flexibility	(5)
Holistic thinking	(5)
Integrity	(5)
International buying	(5)
Manage internal relationships	(5)
Market knowledge	(5)
Mathematical skills	(5)
Networking	(5)
Oral communication	(5)
Proactive	(5)
Process management	(5)
Responsibility	(5)

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Salesmanship	(5)
Stakeholder mapping/management	(5)
Stress management	(5)
Structure supplier relationships	(5)
Supplier negotiation	(5)
Supply base analysis	(5)
Tactful	(5)
Technology application	(5)
Understand computational techniques	(5)

Table 2: Ranking of PSM Maturity Based Skills mentioned 5 times or more (numbers in brackets stand for the number of multiple nominations)

Within each category, the skills have been clustered (as shown in Table 12) to summarize them and to reduce data and this analysis is shown in table 12. This analysis is also used as a basis for the educational landscape gap analysis, which compares the total skills set out of this maturity analysis with existing PSM study programs in chapter 12.

Clusters:

	Management Function	Description
<b>PL</b>	<b>Planning and Strategy</b>	
<b>PL1</b>	<b>Demand Planning</b>	
	Forecasting and Demand Planning	Planning of annual demands based on the sales forecast and past experience as input for annual negotiations
	Spend Cube Analysis	
	Obsolescence Management	
	Demand Management	
	Enterprise Resource Planning / Material Requirements Planning / Advanced Planning and Scheduling	IT skills necessary to extract planning data from employed ERP system
<b>PL2</b>	<b>Pooling Planning</b>	
	Pooling Planning and Organising	One of the most powerful tools of purchasing is to bundle the entire demands of the firm / group of companies. Pooling requires careful planning, demand identification and the application of organisational solutions (lead buyer concept, centralisation, purchasing councils)
	Supply Chain Analysis	
	Supply Chain Design	
<b>PL3</b>	<b>Market Analysis and Planning</b>	
	Supply Market Analysis	Analysis of the supply market i.e. the suppliers of a particular good and their properties / relationships to each other. Analysis of competitive pressure and market power.
	Commodity Analysis	
	Supply Base Research	
	Market Trends	
	Market Analysis	
	Market Knowledge	
	Market Intelligence	
	Research	
	Investigation	

	Supply Chain Analysis and Planning	Analysis and planning not only of the immediate supply market, but consideration of the entire supply chain
	Commodity and Domain Specific Knowledge	Knowledge on a special purchasing domain, e.g. automotive industry, construction, purchasing of health etc.
<b>PL4</b>	<b>Innovation Analysis and Planning</b>	
	Technology Planning	Contribution to innovation is one of the novel tasks purchasing has to fulfil. This requires knowledge on the technological requirements of its own company, as well as systematic scans of the solutions available on the supply market
	Product Knowledge	
	Product Design	
	Collaborative Partnerships	
	Open Innovation	
	Technology Know-how	
<b>PL5</b>	<b>Sourcing Strategy Planning</b>	
	Category Strategy Development	Development of the sourcing strategy for a particular category or family of purchasing goods, including strategic analysis and category classification (e.g. Kraljic)
	Strategy	
	Structure Supplier Relationships	
	Ability to Implement Business Strategies	
	Business Case Development	
	Strategic Agility	
	Strategic Industry Management	
	Category Strategy	
	Strategic Sourcing	
	Make or Buy Decisions	
	Mob	
	Outsourcing	
<b>SO</b>	<b>Structural Organisation</b>	
<b>SO1</b>	<b>Organisational Structure and Mandates</b>	
	Purchasing Organisation Knowledge	Purchasing follows distinctive organisational models
	Procurement Systems	
	Organisational Agility	
	Centralised Procurement	
	Best Practice Knowledge	
	Process Management	The design of processes and the updating as well as reading and understanding processes.
<b>SO2</b>	<b>Strategic Integration with Board</b>	
	Add Value to the Organisation / Importance of	
	Strategic Management	Strategic integration refers to the preparation of purchasers to work as a board member. Sourcing strategy development is covered is covered above in planning.
	Change Management	
	Business Knowledge	
	Enterprise Economics	
	Strategic Thinking	
	Corporate Governance	Knowledge on how organisations are governed, including board, role of advisory board, stakeholders etc.
	Business Management	
	Position Procurement in Organisation	How to ensure that purchasing plays an adequate role in the organisation.
	International Finance	
	Business Administration	
	Implement Policies	
	Holistic Thinking	

	Target-oriented	
	Stakeholder Mapping/Management	
<b>SO3</b>	<b>Purchasing Involvement with other Functions</b>	
	Passing on/Share Information	
	Cross-functional Teams	Explicit training in how to function and run cross-functional teams
	Managing Internal Customers	
	Internal Negotiation	
	Interdisciplinary Understanding	
	Operations Management	In order to collaborate with other functions, purchasers profit from a) knowing basics about the other function and b) knows about how to specifically design the interface
	Plant Maintenance	
	Manage Internal Relationships	
	Understand Manufacturing Systems and Processes	
	Lean Management	
	Quality Management	
	Total Quality Management	
	Marketing	
	Distribution	
	Customer Focus	
	Customer Relationship Management	
	Logistics	
	Capacity Planning	
	Interface to Logistic Service Providers	
	Reverse Logistics	
	Transportation	
	Storage/Warehouse Management	
	Incoming Goods	
	Materials Management	
	Scheduling Techniques	
	Inventory Management	
	Supply Chain Management	
	Research and Development	
<b>PO</b>	<b>Process Organisation</b>	
<b>PO1</b>	<b>Supplier Selection</b>	
	Request for Quotation - Solicit Offers	
	Specification Development	
	Project Plan	
	Global Sourcing / Supplier Acquisition	
	Supplier Acquisition	
	Foreign Currency	
	Import/Export	
	INCOTERMS	
	International Buying	
	EU Procurement Legislation	
	EU Procurement Regulations	
	Global Connectivity	
	Evaluate Offers	
	Diversity	
	Ethical Issues	
	Cost / Price Analysis	

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	Decision Making	
	Supplier Selection	
	Tender Evaluation	
	Corporate Social Responsibility	
	Social Justice Principles	
	Sustainability	
<b>PO2</b>	<b>Negotiation</b>	
	Negotiation	
	Negotiation Preparation	
	Negotiation Skills	
	Price Negotiation	
	Conduct Negotiation	
	Supplier Negotiation	
<b>PO3</b>	<b>Contract Development and Management</b>	
	Contract Development	Designing of contracts, application of standard vs. customised contracts
	Contract Law	
	Legal Issues	
	Contract Management	Once the contract has been signed, it has to be monitored and enforced
	Contract Administration	
	Disposal	
	Legal, Regulatory Aspects	
	Claims	A novel form for suppliers to increase their margin is claims management, according to which the product is sold below its price and the margin comes from subsequent extra charges. Purchasers react by limiting the contractual potential for claims management.
	Compliance	
	Supplier Relationship Management	Here the focus is on the ongoing management of the suppliers after contracting. Sometimes SRM is also defined as strategically planning for, and managing, all interactions with suppliers. Most of the planning is covered before, though.
	Manage Strategic Partnerships	
	Supplier management	
<b>PO4</b>	<b>Supplier Risk Management</b>	
	Risk Management	
	Financial Health Suppliers	
	Risk Analysis	
	Risk Management	
<b>PO5</b>	<b>Supplier Evaluation</b>	
	Supplier Evaluation	
	Evaluate Contractor	
<b>PO6</b>	<b>Supplier Development</b>	
	Continuous Process Improvement	
	Six Sigma	
	Supplier Development	
<b>PO7</b>	<b>Early Supplier Involvement</b>	
	Blueprint Reading	
	Early Supplier Involvement	
	Technical Knowledge of Purchaser	
	CAD Skills	
	Product Development	
	Technology Application	

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	Intellectual Property Rights	
<b>HR</b>	<b>Human Resources and Leadership</b>	
<b>HR1</b>	<b>Job Descriptions and Competences</b>	
	Purchasing Roles and Job Profiles	
<b>HR2</b>	<b>Personnel Selection and Integration</b>	
	Personnel Selection Process	
	Employee Integration and Development Plan	
<b>HR3</b>	<b>Performance Appraisal and Career Development</b>	
	Employee Performance Measurement	
	Train Staff	
	Develop Oneself and Others	
	Coaching	
	Leadership	
	Continuous Learning	
<b>HR4</b>	<b>Soft Skills Development (Explicit Training)</b>	
	Project Management	
	Goals Setting	
	Time Management	
	Team Ability	
	Conflict Management	
	Team Building	
	Salesmanship	
	Communication Skills	
	Interpersonal Communication Skills	
	Written Communication	
	Oral Communication	
	Language Skills (esp. English)	
	Cross-cultural Awareness	
	Personality	
	Persuasive	
	Creativity	
	Entrepreneurial	
	Academic Skills	
	Trustful / Integrity	
	Adaptability	
<b>HR5</b>	<b>Soft Skills Development (No EC, Indirectly Acquired)</b>	
	Project Management	
	Goals Setting	
	Time Management	
	Team Ability	
	Conflict Management	
	Team Building	
	Salesmanship	
	Communication Skills	
	Interpersonal Communication Skills	
	Written Communication	
	Oral Communication	
	Language Skills (esp. English)	
	Cross-cultural Awareness	
	Personality	
	Persuasive	

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	Creativity	
	Entrepreneurial	
	Academic Skills	
	Trustful / Integrity	
	Adaptability	
<b>CO</b>	<b>Controlling</b>	
<b>CO1</b>	<b>Controlling Target System</b>	
	Set Objectives / KPI's	Definition of KPI's and their implementation
	KPI's	
	Data Management	
	Data Control	
	Quality Control	
	Manage Performance	
	Set Objectives	
	Finance Knowledge	
<b>CO2</b>	<b>Purchasing Controlling Process and Structure</b>	
	SAP	
	Performance Measurement and Follow-up	Continuous monitoring of performance and target achievement, degree of implementation logic, incl. Project controlling. Performance of the purchasing function. Performance of suppliers is part of "supplier evaluation".
	Follow-up	
	Measure Performance	
	Reporting	
	Budgeting	
	Accounting	
<b>CO3</b>	<b>Methods and Tools Support</b>	
	Data Analysis	
	Benchmarking	
	Handle Big Data, Smart Data	
	Price Analysis	
	Portfolio Analysis Support	
	Critical Path Analysis	
	Supply Base Analysis	
	Cost Reduction Techniques	
	Analytical Skills	
	Mathematical Skills	
	Statistics	
	Supplier Cost Targeting	
	Cost Analysis	
	Life Cycle Costing	
	TCO	
	Lever Analysis Support	
<b>CO4</b>	<b>Supportive IT</b>	
	Procurement IT Systems	
	E-procurement	
	Understand Computational Techniques	
	Information Control	
	Automated Tools	
	Management Information Systems	
	IT Enabled Sourcing	

Table 3: Purchasing skills clusters in maturity model structure (grey: sup-categories to black terms)

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The next step is to compare the purchasing skills overview with the already existing purchasing study programs in Europe in order to find out about gaps programs are missing to teach and the one hand and to find out about possible over-supply on the other hand. Chapter 12 deals with these investigations.

To give an outlook towards curriculum design, professional knowledge transfer and soft skills should be put across simultaneously by teaching via team work, case studies, workshops and the usage of other innovative teaching and learning methods.

## 1. Appendix – list of academic journal papers on PSM skills

1. Anderson, Matthew G.; Katz, Paul B. (1998): Strategic Sourcing. In: *The International Journal of Logistics Management* 9 (1), S. 1–13.
2. Baily, Peter; Farmer, David; Jessop, David; Jones, David (1994): Purchasing principles and management. 7. ed. London: Pitman Publishing.
3. Burt, David N.; Dobler, Donald W. (2003): World class supply management. The key the supply chain management. 7. ed. New York, London: McGraw-Hill Irwin (McGraw-Hill series in management).
4. Carr, Amelia S.; Smeltzer, Larry R. (2000): An Empirical Study of the Relationships among Purchasing Skills and Strategic Purchasing, Financial Performance, and Supplier Responsiveness. In: *The Journal of Supply Chain Management* (Summer 2000), S. 40–54.
5. Carter, Joseph R.; Narasimhan, R. (1996): A comparison of North American and European future trends. In: *International Journal of Purchasing and Materials Management* 23 (3), S. 12–23.
6. Cavinato, J. (1987): Purchasing performance. What makes the magic? In: *Journal of Purchasing and Materials Management* 23 (3), S. 10–17.
7. Cousins, Paul D.; Spekman, Robert (2003): Strategic supply and the management of inter- and intra-organisational relationships. In: *Journal of Purchasing and Supply Management* 9 (1), S. 19–29.
8. Cruz, C.; Murphy, E. (1996): Purchasing's New Importance Requires a Broader Education. In: *Purchasing* 121 (9), S. 46–49.
9. Down, K.; Liedtka, J. (1994): What corporations seek in MBA hires. A survey. In: *Selections* 10 (2), S. 34–39.
10. Eltantawy, Reham A.; Giunipero, Larry; Fox, Gavin L. (2009): A strategic skill based model of supplier integration and its effect on supply management performance. In: *Industrial Marketing Management* 38 (8), S. 925–936.
11. Faes, Wouter; Knight, Louise; Matthyssens, Paul: Buyer profiles: an empirical investigation of changing organizational requirements. In: *European Journal of Purchasing & Supply Management*.
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## 2. Appendix – practitioner based competency models

Organisation	Location	Brief Description	Source
<b>APICS (American Production and Inventory Control Society)</b>	<b>US</b>	Competency models developed as actionable tools to allow professionals to rank their skills against other professionals and identify areas for improvement and also to assist hiring managers as they evaluate and compare candidates. These models follows guidelines set by the Employment and Training Administration of the United States Department of Labor.	<a href="http://www.apics.org/careers-education-professional-development/careers/competency-models">http://www.apics.org/careers-education-professional-development/careers/competency-models</a>
<b>Scottish Government Procurement Competency Framework</b>	<b>UK</b>	Developed by the Cross-Sectoral People and Skills Working Group in response to recommendations from the Review of Public Procurement in Scotland (2006). Has been endorsed by each of the Centres of Expertise for use in their sectors – <a href="#">Advanced Procurement for Universities and Colleges (APUC)</a> for Scotland’s universities and colleges, <a href="#">NHS National Procurement</a> the centre of procurement expertise for health, and <a href="#">Scotland Excel</a> for the local government sector. Identifies the skills and competency levels required by all staff involved in the procurement process and helps people take ownership of their personal development through a skills assessment, identifies training and development needs, and career planning.	<a href="http://www.gov.scot/Topics/Government/Procurement/Capability/proccompdfw">www.gov.scot/Topics/Government/Procurement/Capability/proccompdfw</a>
<b>Danish Purchasing &amp; Logistics Forum</b>	<b>Denmark</b>	Compass is a comprehensive competency assessment solution for procurement. Individuals assess their competencies against ideal role profiles, these assessments are compared with managers views, gaps against the ideal profile are identified and prioritised, and personal development plans produced.	<a href="http://www.dilf.dk/dk/arrangementer/kurser/kompetenceprofiler/competence-purchasing/">www.dilf.dk/dk/arrangementer/kurser/kompetenceprofiler/competence-purchasing/</a>
<b>NAEP (National Association of Educational Purchasers)</b>	<b>US</b>	Since the 1920’s, NAEP has been the non-profit professional Association primarily dedicated to serving higher education purchasing officers in the U.S. and Canada. NAEP’s mission is to facilitate the development, exchange and practice of effective and ethical procurement principles and techniques within higher education and associated communities, through continuing education, networking, public information and advocacy.	<a href="http://c.ymcdn.com/sites/www.naepnet.org/resource/resmgr/NAEPInfo/NAEP_Competency_Model.pdf">http://c.ymcdn.com/sites/www.naepnet.org/resource/resmgr/NAEPInfo/NAEP_Competency_Model.pdf</a>
<b>New Zealand Procurement Competency Review</b>	<b>New Zealand</b>	Designed to assist public procurers and their managers determine where individuals currently sit within their profession and to provide a basic roadmap for further professional development. It combines international and local best practices and is the result of extensive input from senior procurement practitioners across the public sector.	<a href="http://www.business.govt.nz/procurement/news/archived-news/try-our-new-procurement-competency-framework">http://www.business.govt.nz/procurement/news/archived-news/try-our-new-procurement-competency-framework</a>
<b>Department of Defense (DOD) Procurement Competency Review</b>	<b>US</b>	In response to tasking from the Director of Human Capital Initiatives (HCI) for the Department of Defense’s (DOD) Acquisition, Technology, and Logistics (AT&L), CNA is working with HCI and workforce representatives to develop competency models for each of the major career fields within the AT&L workforce. This report contains CNA’s analysis of the Purchasing career field.	<a href="https://dap.dau.mil/workforce/Documents/Comp/DoD%20ATL%20Defense%20Acquisition%20Workforce%20Competency%20Model%20-%20Purchasing.pdf">https://dap.dau.mil/workforce/Documents/Comp/DoD%20ATL%20Defense%20Acquisition%20Workforce%20Competency%20Model%20-%20Purchasing.pdf</a>
<b>British Columbia</b>	<b>Canada</b>	Three-E Training Inc. along with its sub-contractor, Schmidt & Carbol Consulting was contracted by the	<a href="http://www2.gov.bc.ca/assets/gov/government/services-for-government-and-">http://www2.gov.bc.ca/assets/gov/government/services-for-government-and-</a>

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<b>Procurement Analysis</b>		Learning Centre of the BC Public Service Agency to undertake a review and validation of the Procurement Competency Model and Framework. The contractors were also asked to pay particular attention to the learning and training needs of executives in relation to procurement.	<a href="https://broader-public-sector/buy-goods-services-and-construction/support-services/procurement-competency-model-report.pdf">broader-public-sector/buy-goods-services-and-construction/support-services/procurement-competency-model-report.pdf</a>
<b>OGC UK Government Procurement Review</b>	<b>UK</b>	The integrated Procurement Profession Skills and Competency Framework sets out the skills, new behaviours and competencies which Civil Service procurement professionals should demonstrate in delivering highly efficient, dynamic and professional procurement and commercial operations that deliver value for money to the taxpayer. This Framework is an essential component of driving up organisational and individual capability as part of the procurement reform agenda.	
<b>Ministry of Justice Procurement Competency</b>	<b>UK</b>	This competence framework sets out the technical skills procurement practitioners are expected to have and the professional competence profile for every procurement post in the organisation. It complements the <i>Ministry of Justice</i> Core Competence Framework and ensures that each activity can be undertaken to a required level depending on the post.	
<b>Chartered Institute of Purchasing &amp; Supply (CIPS)</b>	<b>UK</b>	Used by individuals and organisations to enhance performance, the Global Standard in Procurement and Supply sets the benchmark for what good looks like in procurement and supply at all levels and across all sectors. It helps individuals to identify current operating skills and abilities and what is needed to progress. Organisations of all types can benchmark their procurement professionals against the competencies in the Standard and identify any skills and capability gaps.	<a href="http://globalstandard.cips.org/?utm_source=CIPSwebsite&amp;utm_medium=webpage&amp;utm_campaign=AccessTheInteractiveToolScreenshotStep1">http://globalstandard.cips.org/?utm_source=CIPSwebsite&amp;utm_medium=webpage&amp;utm_campaign=AccessTheInteractiveToolScreenshotStep1</a>
<b>NEVI</b>	<b>Netherlands</b>	NEVI, the Dutch Association for Purchasing Management, was founded in 1956. Since then NEVI has grown to become one of the world's leading Purchasing Management organisations. With over 6.000 members, working in the private and public field, NEVI is the principal authority for matters concerning Purchasing in the Netherlands.	<a href="http://www.supplymanagementcongres.nl/files/StreamFile109254/handout-nevi-perspective-slides-ismc-follow-up.pdf">www.supplymanagementcongres.nl/files/StreamFile109254/handout-nevi-perspective-slides-ismc-follow-up.pdf</a>
<b>AT Kearney</b>	<b>Global</b>	Consultancy Company	<a href="http://www.atkearney.com/procurement/capabilities">www.atkearney.com/procurement/capabilities</a>
<b>Australasian Procurement and Construction Council</b>	<b>Australia</b>	Until recently, procurement professionalism in Australia and New Zealand has not been clearly recognised or defined. Too often, public procurement has been undertaken without professional support and procurement people have focused on the process rather than the desired outcome. To ensure that public sector agencies are able to deliver on their objectives and to mitigate the potential risk of poorly executed procurement and lost opportunities, urgent action is needed to attract and develop procurement capabilities across government.	<a href="http://www.apcc.gov.au/ALLAPCC/APCC%20PUB_Building%20Government%20Procurement%20Capabilities%20Guide%20-%20May%202008.pdf">www.apcc.gov.au/ALLAPCC/APCC%20PUB_Building%20Government%20Procurement%20Capabilities%20Guide%20-%20May%202008.pdf</a>
<b>Morgan McKinley</b>	<b>Global</b>	Professional Services Recruitment Company	<a href="http://www.morganmckinley.ie/article/top-10-competencies-procurement-professionals">www.morganmckinley.ie/article/top-10-competencies-procurement-professionals</a>
<b>CEB</b>	<b>Global</b>	Best practice insight and technology company	<a href="http://www.cebglobal.com/blogs/six-procurement-competencies-key-to-strategic-success/">www.cebglobal.com/blogs/six-procurement-competencies-key-to-strategic-success/</a>

<b>Future Purchasing Consultancy</b>	<b>Global</b>	Consultancy Company	<a href="http://www.futurepurchasing.com/">www.futurepurchasing.com/</a>
<b>Hays</b>	<b>Global</b>	Recruitment company	<a href="http://www.hays.co.uk/features/HAYS_057675">www.hays.co.uk/features/HAYS_057675</a>
<b>Institute for Supply Management (ISM)</b>	<b>US</b>	With more than 48,000 active members worldwide, ISM is the largest global organization dedicated to advancing the practice of procurement and supply management. ISM is the leader in supply chain, driving value to its members with its two widely renowned certifications, the Report On Business®, countless educational resources and extensive networking events around the globe.	<a href="http://ism.files.cms-plus.com/2015/MasteryModel/images/Mastery%20Model%20brochure.pdf">http://ism.files.cms-plus.com/2015/MasteryModel/images/Mastery%20Model%20brochure.pdf</a>
<b>PMMS</b>	<b>Global</b>	PMMS Consulting Group are procurement specialists, providing intelligent and practical solutions to organisations operating across the private, public and third sectors.	<a href="http://arcblue.com.au/assets/PDF/procurement-skills-assessments1.pdf">http://arcblue.com.au/assets/PDF/procurement-skills-assessments1.pdf</a>
<b>International Federation of Purchasing &amp; Supply Management (IFPSM)</b>	<b>Global</b>	The International Federation of Purchasing and Supply Management (IFPSM) is the union of 48 National and Regional Purchasing Associations worldwide. Within this circle, about 250,000 Purchasing Professionals can be reached. IFPSM facilitates the development and distribution of knowledge to elevate and advance the procurement profession, thus favorably impacting the standard of living of citizens worldwide through improved business practices. Global standard - A Quality Standard for Supply Chain Educational Programs – The Global Standard sets out the mix of knowledge, learning and skills against which educational programs in purchasing and supply management of an intellectual equivalence of at least first degree equivalence level can be assessed and accredited.	<a href="http://www.ifpsm.org/global-standard/the-standard/">www.ifpsm.org/global-standard/the-standard/</a>

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### 3. Appendix – PSM future requirements

Study	Keywords
<i>German sources</i>	
Beschaffung aktuell 03 2015: Einkauf 4.0 und die vierte industrielle Revolution Teil 1, S. 20-21	Open-minded Multi-divisional Change management (organisation, awareness, structures, processes, leadership) Initiate Expert in technology and management Interface logistic service providers open innovation crowdsourcing inventory management Obsolescence Management (e.g. effected by 3D-printing replacing procurement and warehousing) awareness of open and ongoing topics interdisciplinary qualifications
Beschaffung aktuell 03 2015: Einkauf 2020 – powered by eSolutions, S. 22-23	Global Connectivity Handling of big data, smart data Reaction to market changes Handling of digital, smart information Collaborate with 3 <sup>rd</sup> party stakeholders e-procurement: e-auctions, e-tenders manage supply chains controlling forecasting, market research connectivity and efficient use of data for collaborations and to manage supply chains more intelligent
PWC: Einkauf – Die neue Macht in den Unternehmen, Juli 2014	Intrapreneurship Inter-divisional: purchasing, R&D, production Quality management Product innovation New technology (e.g. 3D-printing) Expert knowledge Digitalisation (e-business, suppliers linked to IT-systems) Increasing complexity (e.g. cost controlling) Planning and managing currency and cost risks Verify offers, tenders
polariXpartner: Die Zukunft des Einkaufs (2013 – 2015)	Supplier development Global sourcing increase in efficiency trend-setter growth driver cost management (methods, TCO) transparency of costs awareness of financial risks (currency, raw material prices) cyclic forecasting, cooperate with sales dept. scenario analysis SWOT analysis International alliances (standards, global markets/language/culture knowledge) Frame and optimise global supply chains (transparency, identify/analyse/evaluate risks and opportunities, Best Cost Country concept) Early warning systems for risk management Further qualification/training (e.g. methods for cost reduction Design to Cost and Target Costing, strategic and tactic negotiation, culture, international contract and insolvency law) Sustainability, compliance, marketing of such activities proactive
ATKearney: Procurement 2020+, 10 Mega-Trends, die den Einkauf verändern werden	Permanent training Transparency Digitalisation, automation Statistics Visualisation Early warning systems KPIs Procurement controlling Modern analytics (e.g. regression analysis, predictive modelling) Collaborative Optimization, collaboration tools Cross-silo-optimisation Collaborative Network Sourcing Cross-functional integration Social networks SRM

	Professional risk management Innovation-/ Crowd-Sourcing Out-of-the-box thinking Agility, flexibility
Lünendonk: Procurement Excellence 2011, Die Zukunft des Einkaufs	Strategic thinking, think ahead Szenario technique Monitor geopolitical developments Variable planning processes Early integration of procurement for new technologies/new product development Quality management Risk management Language skills, Communication skills in several languages Standardise processes Differentiate strategic and operational purchasing Analytical thinking Negotiations Far-reaching knowledge about products, markets Internal communication Moderation Working in teams Business and economical knowledge Thinking in processes Basic knowledge of logistics/SCM Deal with growing regions Build and improve beneficial cooperation in all directions Thinking in alternatives
Spring Procurement GmbH/Wirtschaftsuniversität Wien: Studie Zukunft Einkauf - Trends in der Beschaffung	Growing importance of procurement integration in strategic decisions growing education requirements and career opportunities reduction of Maverick Buying guidelines discipline involvement in product development electronical buying systems shift in buying regions (less in regional markets, more in China, India, Eastern Europe) awareness of quality and supply risk by global sourcing language skills know-how in international business environmental awareness
Studie Einkauf 4.0 – Digitalisierung des Einkaufs, 2016	Digitalisation, Automation of functional processes Complexity Procurement of integrated solutions Manage internal and external interfaces Technical understanding Data analyst Responsibility for industry 4.0 implementation Share knowledge Networking Open to new technologies and changes (change management) Failure management Adjust structures and processes to digitalisation Dealing with big data, assistance systems, augmented reality Digital procurement portfolio Outside-in view
<i>English sources</i>	
The Deloitte Global CPO Survey 2016	consolidating spend increasing level of supplier collaboration restructuring existing supplier relationships cognitive analytics crowdsourcing digital reporting cloud based computing mobile technologies spend analysis contract management cost reduction risk management/mitigation Drive innovation with suppliers
Procurement Leaders: Interview: Josh Ghaim, Johnson & Johnson's chief technology officer	combination of procurement and R&D supplier-enabled innovation value creation openness long-term financial planning focus on strategic value of relationships

Handfield et al.: An organizational entrepreneurship model of supply management integration and performance outcomes, 2008	"Entrepreneurship"
World Economic Forum: New Vision for Education: Fostering Social and Emotional Learning through Technology, 2016 → good source for learning methods	Creativity Initiative Adaptability Virtual reality Advanced analytics
L. Schneider, C.M.Wallenburg: 50 Years of research on organizing the purchasing function: Do we need anymore? Journal of Purchasing & Supply Management 19 (2013) 144–164	Cross-functional teams Complex organisations Talents shortage Scarce resources Global competition Dynamic, volatile markets Sustainability relevance Supply networking outsourcing

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