CROSS SECTOR
SUPPLY CHAIN SKILLS

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CROSS SECTOR SUPPLY CHAIN SKILLS PROJECT

Project background

In November 2016, the Australian Industry and Skills Committee (AISC) commissioned nine cross sector projects. The projects were established to support the reform priorities of the Council of Australian Governments (COAG) Industry and Skills Council to reduce duplication, to develop Units of Competency that can be used by multiple industries and to support occupational mobility. It is anticipated that the uptake of cross sector Units of Competency across the national training system will help individuals acquire the skills needed to respond to digital and technological changes in industry.

The goal of the cross sector Supply Chain Skills Project was to develop a suite of Units of Competency and Skill Sets for those supply chain skills common to a range of industry sectors and in doing so, support the mobility of skilled labour and the agility of the Australian workforce. The project will enable the many individuals working in supply chains to be skilled to the same world class standards whilst ensuring that Australia's supply chains are highly efficient and are seen as critical partners in global trade.

For the purpose of the project it was agreed that a supply chain would be defined as 'the network of organisations that cooperate to transform raw materials, finished goods and services for consumers[1].' The impact of technology on supply chains has led to the term 'digital' supply chain (sometimes referred to as supply chain 4.0).

This term is typically used when discussing the implementation of tectological disruptors such as the Internet of Things (IoT), blockchain, machine learning, automation, Artificial Intelligence (AI), big data and predictive analytics that drive improvements to traditional supply chains.

https://vimeo.com/360716588/c7bfac4ddb - Mark McKenzie

Project tasks

As a result of research, analysis and industry consultation the Cross Sector Supply Chain Skills Project Reference Group (PRG) who had oversight of the project under the direction of the Transport and Logistics Industry Reference Committee (IRC) were tasked with completing:

1. Sixteen new cross sector supply chain Units of Competency that reflect new and emerging skill areas and/or fill existing gaps. Once endorsed, the Units of Competency will enable greater portability of skills and cross sector usage; they will be incorporated into the new Skill Sets.

2. The review and modification of nine existing Units of Competency to enable greater portability of skills and cross sector usage. These existing Units of Competency will be made relevant to multiple sectors through relatively straightforward modifications to their content. These Units of Competency have been selected because they will fill existing gaps and respond to key cross sector supply chain themes.

3. The rationalisation of ten Units of Competency relating to stock control to develop two Units of Competency suitable for cross sector use. This will include the deletion of the remaining superseded Units of Competency to reduce duplication in the national training system.

4. The deletion of five existing Units of Competency where there was clear duplication or little or no enrolments. The overall reduction of supply chain Units of Competency on the national register will reduce confusion in the Vocational Education and Training (VET) marketplace and within industry.

5. The development of ten new Skill Sets utilising the cross sector supply chain Units of Competency.

6. The development of a Companion Volume Implementation Guide (CVIG) that addressed the delivery of cross sector supply chain Units of Competency to assist implementation by Registered Training Organisations (RTOs).

Source: Cerasis

Project design

The PRG's methodology for the project was purposefully designed to deliver an optimum outcome for industry and learners, whilst minimising any negative impact on the VET system. The development of a suite of cross sector supply chain Units of Competency and Skill Sets will assist

Industry/employers

- build industry preparedness and workforce capability in response to rapidly changing supply chain business models and technologies
- help to increase intra and inter occupational pathways between sectors by creating a dynamic and adaptable workforce that employers can access
- enable contextualised skills development to meet the individual needs of each workplace and/or enterprise.

Employees/learners

- cross sector supply chain skills are in high demand and will enhance the market value and career progression of employees and/or job seekers
- Skill Sets will provide achievable 'bite sized' learning opportunities for existing workers, as distinct from full qualifications.

VET system/RTOs

- deliver administrative and resourcing efficiencies through the deletion of Units of Competency with little or no enrolments
- assist trainers and assessors deliver training and assessment with an appropriate level of contextualisation to make the Units of Competency meaningful for different industry sectors
- adds new training products and access to compliant resources to support high quality delivery and assessment.

Governments

- simplify the administration and management of vocational education and training by respective jurisdictions through the deletion of Units of Competency with little or no enrolments and the development of cross sector Units of Competency
- create a greater appetite for workplace and/or enterprises to co-investment in workforce skills through industry support of training products
- fund allocations for the deletion of Units of Competency and the development of new training products that better address industry needs can be adjusted.

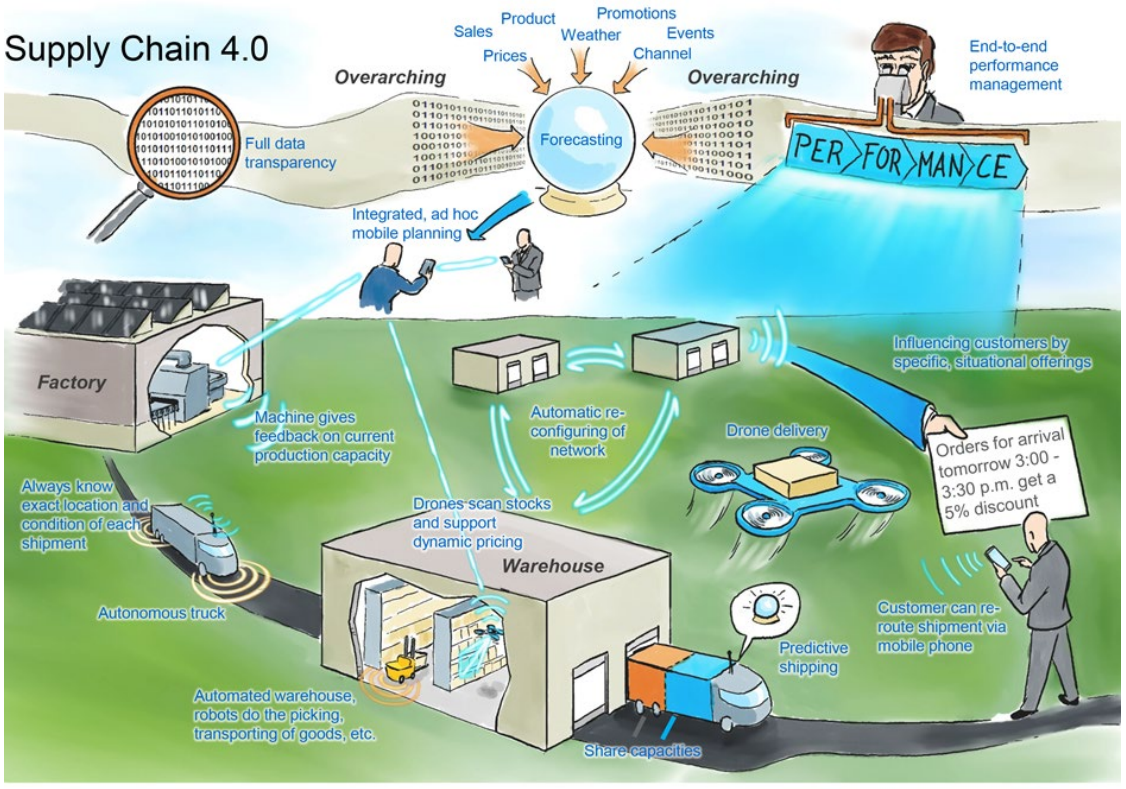
About the project

Supply chains are all around us and are fundamental to how we live in an increasingly globalised world. The food we eat, clothes we wear, the buildings we inhabit and the transport and equipment we use are all examples of how we benefit from multiple supply chains each and every day.

New technologies, automation, big data and sophisticated analytics are rapidly changing how supply chains operate. Industry has identified a number of tectological disruptors impacting the skills base and job roles in supply chains. In particular,

- blockchain technologies that will allow supply chain stakeholders to work as one virtual organisation to deliver greater efficiencies, security and increased visibility to buyers, operators and customers
- big data and sophisticated analytics that will deliver greater responsiveness, better risk management, rapid scenario development and faster decision making within supply chains
- synchronisation of virtually connected operations and the immediacy of communication along the supply chain that will decrease the impact of geography
- disruptive supply chain led and enabled business models that will morph into network based models that speed up supply chain flows and remove waste across the supply chain
- automation and supply chain technologies that will continue to deliver solutions that are scalable and cost effective
- value chains that will be able to modify their operations to suit mass customisation and customer specification.

Skills required to operate in digital supply chains



SOURCE: McKinsey

The increasing prevalence of technology in supply chains will place a premium on technical proficiency in the workforce. The ability to work effectively within and across end-to-end supply chains will however, require 'soft' skill capabilities such as communication, collaboration and service orientation by individuals in the supply chain workforce. The World Economic Forum[2] has highlighted the importance of non-technical skills such as creative and analytical thinking, originality, initiative, innovation and complex problem solving.

Today, the ideal supply chain employee has both tactical and operational expertise and professional competencies such as analytical skills. Tomorrow's supply chain employee will also need to excel at strategic thinking, innovation, high level analysis and leadership.

Supply chain personnel operating in a digital supply chain will be required to

- undertake high level analysis of data
- use and monitor technology systems for daily activities and decision making in real time
- undertake continuous learning to understand the capabilities of rapidly evolving technologies such as autonomous vehicles
- use critical and creative thinking skills as more time will be spent on problem solving for continuous improvement
- have digital literacy to receive work instructions and guidance
- understand end-to-end supply chains to find ways to leverage technology to improve operational performance
- have the flexibility to adapt and change as supply chain roles will require the ability to work alongside robots and other technological devices and apps
- have leadership skills to manage larger projects as automation takes an increasingly prevalent role in organisations
- undertake planning for developing optimal solutions for network and technological efficiency
- have technical and analytical knowledge to manage increased levels of automation and artificial intelligence systems
- be operationally agile.

Managers operating in a digital supply chain will be required to demonstrate

- leadership to create their vision for innovative supply chains and to assist with change management
- technical and analytical knowledge to understand the impact of a digital supply chain to an organisation
- holistic solution thinking to create alignment with the supply chain vision of the organisation.

Source: Liquid Planner

Supply chain occupations

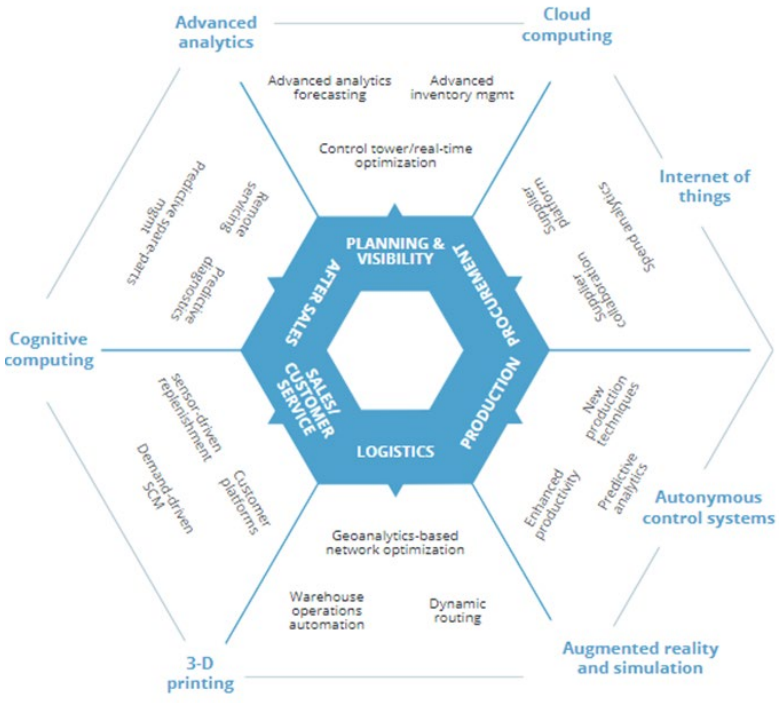
The future of supply chains will be faster, smarter and more transparent than ever before. As organisations expand their supply chain activities, they will need to utilise the extensive data available to them and continue to connect and engage with customers all over the world.

Supply chain career paths are diverse given that supply chains touch almost every industry and encompass a broad array of interconnected business activities and functions with roles and responsibilities in areas such as

- **planning** – supply planning, forecasting and demand planning, production planning, capacity planning, inventory management, sales and operations planning and integrated business planning
- **making** – production of materials or goods, maintenance, engineering, quality, planning and scheduling, purchasing, warehousing with supporting functions that typically include finance, human resources, health and safety and continuous improvement
- **buying/sourcing** – strategic sourcing, procurement, commodities management (direct spend) and category management (indirect spend)
- **delivering** – logistics, transportation, warehousing, import/export and reverse logistics (e.g. returns management).

Roles in the supply chain can range from entry level jobs related to stores, warehousing operations, deliveries, sales, administration and coordination through to higher level occupations related to management of projects, data analysis, logistics, procurement, supplier relationships and other complex supply chain requirements. The Future of Work: Occupational and Education Trends in Supply Chain and Logistics in Australia found the sector is expected to grow at an above average rate of more than 2% a year to at least 2022[3].

Advanced robotics and machine learning will see more and more routine work in supply chains becoming automated. However, it needs to be recognised that technological disruption in supply chains will also create new employment opportunities.



Source BCG analysis

COMPETENCY BASED TRAINING

Australia's Vocational Education and Training (VET) system is competency based. Competency based training is a method which develops the skills, knowledge and attitudes required to achieve a consistent application to the standard of performance required in the workplace.

Competency is based on occupational skills standards which are set out in Units of Competency within industry recognised nationally endorsed Training Packages and Accredited Courses. Units of Competency specify the standards of performance required in the workplace; they do not prescribe how individuals should be trained.

Units of Competency

- are statements about the skills and knowledge required for effective performance in a particular job function
- describe work outcomes, not training or modular ways of delivering training
- logically describe standalone skills which are used in a work situation
- can be combined together in groups which align to work functions and job roles.

Individuals are considered to be competent when they are able to consistently apply their knowledge and skills to the standard of performance required in the workplace. Competency comprises four dimensions and it is important that all are assessed within the context of performance

- task skills – the capacity to perform tasks to the required standard
- task management skills – the ability to plan and integrate a number of different tasks and achieve a work outcome
- contingency management skills – the ability to respond to irregularities, breakdowns and other unanticipated occurrences
- job/role environment skills – the ability to deal with the responsibilities and expectations of the work environment including working with others.

The Australian Qualifications Framework (AQF) is the policy for regulated qualifications in the Australian education and training system; it provides specifications for each level of qualification.

It is important to note that Units of Competency are **NOT** assigned an AQF level, only qualifications are recognised by an AQF level. It is also possible to find the same Unit of Competency in a variety of VET qualifications. As long as the Unit of Competency is relevant to the workplace role and the requisite skill level, it is appropriate.

Vocational trainers and assessors employed by Registered Training Organisations (RTOs) use Units of Competency to design training programs. Units of Competency can be delivered in a traditional classroom setting, in the workplace, on the internet, by correspondence and in community venues using a variety of methods.

Vocational assessors have the responsibility of determining what and how much evidence is required to make an assessment judgement. Individuals can be assessed during their training, at the end of their training or without undertaking any training, if they believe that they are already competent.

Evidence can take many forms and be gathered from a number of sources; it can be direct (e.g. observation, oral questioning and demonstration of specific skills), indirect (e.g. assessment of qualities of a final product, review of previous work undertaken and written tests of underpinning knowledge) or supplementary (e.g.

testimonials from employers, reports from supervisors, work diary or log book and examples of reports or work documents). No one form of evidence is better than another.

Cross Sector Units of Competency

The cross sector supply chain Units of Competency have been developed to meet the needs of a variety of industries. Each Unit of Competency identifies a discrete workplace skill and includes the knowledge that underpins competency whilst also meeting the requirements of the Standards for Training Packages, 2012.

The aim of the cross sector supply chain Units of Competency was not to create 'generic' Units of Competency. The cross sector Units of Competency have been developed to allow for contextualisation to a particular industry during training and assessment. Knowledge can be industry specific and trainers and assessors can tailor content to meet explicit industry requirements.

Code	Title
TLIA1001	Secure cargo
TLIP4038	Monitor a supply chain operation
TLIX0004X	Administer inventory systems
TLIX0005X	Administer market supply systems
TLIX0007X	Build digital supply chain capability in the workforce
TLIX0009X	Employ digital supply chain risk management practices
TLIX0010X	Enable traceability in supply chains
TLIX0011X	Establish blockchain in supply chains
TLIX0012X	Lead digital supply chain implementation
TLIX0013X	Maintain stock control and receivals
TLIX0014X	Manage customer focussed supply chain
TLIX0015X	Manage fundamental aspects of supply chains
TLIX0016X	Manage outsourced supply chain operations
TLIX0017X	Manage supply chain mass customisation
TLIX0018X	Monitor compliance in digital supply chains
TLIX0019X	Monitor digital supply chain services
TLIX0020X	Monitor ethical supply chain practices
TLIX0021X	Work with global supply chains

Cross Sector Skill Sets

When Units of Competency are combined into an interrelated set or grouping below the level of a full qualification, they are referred to as 'Skill Sets'. Skill Sets are defined as 'single Units of Competency or combinations of Units of Competency from an endorsed Training Package which link to a licence, regulatory requirement or defined industry need'.

The cross sector supply chain Skill Sets have been specifically developed to address new and emerging skill areas in supply chains. The 'mix and match' incremental nature of the Skill Sets will enable employees to upskill at a pace appropriate to the supply chain challenge.

Code	Title
TLISS00188	Digital Supply Chain Operations Skill Set
TLISS00189	Digital Supply Chain Supervision Skill Set
TLISS00190	Establish Blockchain Skill Set
TLISS00191	Establish Digital Supply Chain Skill Set
TLISS00192	Global Supply Chain Operations Skill Set
TLISS00195	Manage Supply Chains Skill Set
TLISS00197	Monitor Supply Chain Operations Skill Set
TLISS00199	Supply Chain Financial Management Skill Set
TLISS00200	Supply Chain Stock Control Skill Set
TLISS00201	Value Chain Analysis Skill Set

CONTEXTUALISATION AND CROSS SECTOR UNITS OF COMPETENCY

The objective of quality training and assessment is to equip the learner with the skills they need to competently perform in a job role. Contextualisation of the cross sector supply chain Units of Competency is critical to ensuring that the delivery of training and assessment is targeted to the needs of the learner.

What is contextualisation?

Contextualisation is the tailoring of Units of Competency, or the packaging of certain Units of Competency into a qualification, to suit specific needs. It can best be defined as the activity undertaken by a trainer or assessor to make Training Package products and learning resources meaningful to the learner.

Contextualisation can include the addition of industry specific information to an endorsed Unit of Competency to reflect the operating context of job roles thereby, increasing its relevance for the learner. However, contextualisation of endorsed Training Package products and learning resources must be achieved without compromising the Standards for Registered Training Organisations 2015 or impacting the integrity of the outcome of the Unit of Competency or qualification.

Why is contextualisation so important?

Contextualisation gives VET providers the flexibility to create meaningful programs for learners. Contextualising endorsed Training Package products can make learning for individuals more realistic by providing real life and actual workplace examples.

Contextualising provides the opportunity to address the individual needs of learners.

Contextualising makes the learning more meaningful. According to adult learning principles, course participants learn best when the learning is immediately identified as relevant. It is relevant to learners when the learning activities are based on concrete examples or actual work activities.

Contextualising motivates learners to continue with their learning program when they can easily imagine the world of work and comprehend the relevance of their learning activities.

The use of work related examples and activities leads to learners reflecting on how this applies to their own work practice and supports the transfer of learning.

Contextualising provides the opportunity for trainers to address the needs of industry for a workforce with specific enterprise skills and knowledge as well as developing workers who can think, adapt and be innovative.

Contextualisation allows a diverse range of VET learners to be trained and assessed to the same competency standard even if their industry sectors, locations and organisations differ.

What are the rules for contextualisation?

There are specific requirements that must be followed when contextualising a Unit of Competency. Contextualisation should not diminish the breadth of application of the Unit of Competency, reduce its portability, narrow its outcome, limit its use or remove the content of any element or performance criteria. All legislative licensing and other regulatory requirements relevant to the Unit of Competency must be maintained.

Foundation Skills are a broad range of basic proficiencies identified as relevant to participating effectively in the workplace. Two major policy framework initiatives, the Australian Core Skills Framework (ACSF) and the Core Skills for Work (CSfW) underpin Foundation Skills.

Foundation Skills encompass listening, speaking, reading, writing, numeracy and digital literacy along with generic employment capabilities in collaboration, problem solving, self-management, learning for new tasks and using information and communication technology. Foundation Skills must be maintained when contextualising endorsed Training Package products.

Foundation Skills can be identified through an analysis of key trigger words used in the Units of Competency. Australian Skills Quality Authority (ASQA) has prepared a list of trigger words that highlight foundation skills https://www.asqa.gov.au/sites/g/files/net3521/f/Foundation_skills_trigger_words.pdf

How do you contextualise?

There are two ways in which contextualisation occurs

- the first, is when RTOs contextualise Units of Competency to reflect local outcomes. This can involve additions or amendments to the Unit of Competency to suit particular delivery methods, learner profiles, specific enterprise equipment requirements or to otherwise meet local needs
- the second, is by packaging Units of Competency together in a qualification using elective options to suit a particular outcome.

Why do you need to contextualise assessments?

The Standards for Registered Training Organisations 2015[4] states that 'Assessment means the process of collecting evidence and making judgements on whether competency has been achieved, to confirm that an individual can perform to the standard required in the workplace, as specified in a training package or a vocational education and training (VET) accredited course.'

The assessment process is the final stage in confirming a learner has the skills and knowledge to perform an identified task. In an assessment a learner should demonstrate competency of the work task, task management process, job/environmental management skills and contingency management skills. The assessment process should also be used to determine the degree to which a learner can transfer those skills to other work situations.

Contextualisation of assessment resources can include changing words in an assessment to suit a specific industry context or adapting an assessment to suit particular work conditions that apply in an actual workplace. There are three steps for contextualising assessment resources

1. clarify the assessment context
2. review and contextualise the assessment resources

3. trial the contextualised assessment resources.

Contextualising assessment resources allows learners to apply their skills and knowledge in a work setting and context that they find relevant.

Who is responsible for contextualising assessments?

RTOs may contextualise endorsed Training Package products. Contextualisation can include additions or amendments to Units of Competency to suit particular delivery methods, learner profiles, specific workplace equipment requirements or to otherwise meet an explicit industry need.

RTOs are responsible for

- identifying the target audience or learner cohort for whom use of the assessment resources will be relevant
- adapting and contextualising learning resources in particular, assessments to address group and individual learner needs that are relevant to industry and local conditions
- contextualising in accordance with reasonable adjustment principles to ensure that consistent assessment practices are applied.

It is important, however, that RTOs are careful about the amount of contextualisation they undertake. If the contextualisation is overly specific it can compromise the transferability of skills by the learner to other work environments. When a learner does move into a different work context, they should be able to demonstrate the concepts, knowledge and core skills expected.

Principles of Assessment and the Rules of Evidence when contextualising

The Principles of Assessment (fair, flexible, valid and reliable) and the Rules of Evidence (valid, sufficient, authentic and current) must be followed when contextualising assessments.

Principles of assessment

Fairness requires

- reasonable adjustment being applied, where appropriate
- learners being informed about the assessment process including opportunities to challenge a result and to be reassessed, if required.

Flexibility is demonstrated by

- reflecting learner needs
- assessing competencies held by the learner, no matter how or where they have been acquired
- drawing from a range of assessment methods and using those that are appropriate to the learner, the context, the Unit of Competency and its assessment requirements.

Validity requires

- assessment against the Unit of Competency and its assessment requirements including the broad range of skills and knowledge that are essential to 'competent' performance

- assessment of knowledge and skills that is integrated with their practical application
- assessment based on evidence that shows that a learner can demonstrate these skills and knowledge in other similar situations
- judgement of competence based on evidence of learner performance that aligns to the Unit of Competency and its assessment requirements.

Reliability requires
- evidence for assessment being consistently interpreted; assessment results should be comparable, irrespective of the assessor conducting the assessment.

Rules of evidence

Valid evidence requires
- that it be relevant to the competency being assessed with assessors being competent in the areas they are assessing.

Sufficiency requires
- assessors being assured that the quality, quantity and relevance of the assessment evidence enables a judgement of a learner's competency.

Authenticity requires
- assessors being assured that evidence presented for assessment is the learner's own work.

Currency requires
- assessors being assured that assessment evidence demonstrates current competency; assessment evidence should be from the present or the very recent past.

What is required to train and assess contextualised Units of Competency?

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment. As stated, assessments must satisfy the Principles of Assessment and Rules of Evidence and any regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

The ASQA website provides information on the requirements of trainers and assessors in the VET sector https://www.asqa.gov.au

What is reasonable adjustment?

Reasonable adjustment is a legislative term that, for the VET sector, refers to a measure or action taken by an RTO to enable learners with a disability to participate on the same basis as other learners. The definition of disability under legislation is quite broad; it includes physical and learning disabilities, chronic medical conditions and mental illness.

Reasonable adjustment in teaching, learning and assessment activities lessens the impact of a learner's disability on their capacity to learn. However, to be reasonable, adjustments must be appropriate for that learner and must not create undue hardship for the RTO[5].

Learner's, under reasonable adjustment, still need to do the work and demonstrate the required knowledge. Reasonable adjustment does not give learners with a disability an advantage over other participants.

Every reasonable adjustment needs to be justifiable and must uphold the integrity of the Unit of Competency and/or the qualification. As such, VET practitioners need to ensure that

- their materials and teaching methods are inherently flexible and designed for the widest range of learners
- they have used the principles of universal design in their learning and assessment materials and delivery strategies.

Contextualising a Unit of Competency does not preclude reasonable adjustment practices such as providing support or alternatives, providing flexibility, adjusting the physical environment or verifying assessment methods and tools for equity.

Methodology for contextualising

Effective learning occurs when individuals process new information, skills and knowledge in a way that makes sense to them using their own frame of reference[6]. Referencing adult learning principles can assist trainers and assessors in successfully contextualising VET products and materials. Adults learn best when

Learners have control over their learning

- adult learners learn best when they take an active role in their own learning
- adult learners are generally highly motivated and keen to have a say about what they learn and how they learn.

Learning is experiential

- adults can make meaning of the learning when authentic or real world examples and learning activities are used
- adults can often draw on their own experiences to provide additional authentic examples to reinforce and extend the learning.

Learning is cooperative

- adults respond well to a learning environment that is explicitly respectful of learners' ideas, problems, questions and general contribution
- adult learners are more aware that learning is a communal activity, which can include peers, mentors, teachers and interaction with the written word.

Learning is reflective

- adult learners want the opportunity to debate and challenge ideas
- adult learners need time to integrate new knowledge and skills with past understandings.

When contextualising Units of Competency consideration should be given to delivery mode, industry, job roles, learner access to resources, learner characteristics and workplace arrangements. Contextualisation will require the VET practitioner to

1. Identify the work environment
   - identify the industry/work environment
   - make note of specific legislation, equipment, policies and procedures, personnel that the learner is likely to interact with.

2. Examine Performance Criteria
   - examine Performance Criteria and highlight the areas that need to be customised.

3. Not change the Performance Criteria
   - Performance Criteria cannot be reworded to exclude any requirement.

4. Consider the method of training and assessment
   - review the delivery method for training and assessment; is it blended, online or face to face?
   - identify learner's in remote locations.

When contextualising cross sector Units of Competency VET practitioners can undertake the following activities

Activity 1 – Know the Units of Competency

Familiarity with the Units of Competency
- refresh your knowledge of any Units of Competency
- identify key competencies
- look beyond the elements and performance criteria
- review foundation skills and range of conditions
- note the essential skills and knowledge required
- check the assessment conditions

Activity 2 – Know the learners

Consider leaner characteristics
- the ability of the learners and their current level of skills and knowledge
- are the learners likely to be self-motivated?
- the resources and facilities that are available e.g. do the learners have access to the workplace? do they need to acquire any equipment?
- do the learners have RPL credits?
- what industry or jobs are the learners from or aiming to go into?
- do the case studies suit the learner's goals?
- how will evidence of assessments be collected and how much evidence is required?
- can the learner's undertake group activities?
- do the activities need to be adapted to suit individual learners?
- can learners complete the activities in the timeframe given?
- do the learners know about competency based training and assessment?
- is there a blended, online or face-to-face capability and is it suitable for the learner cohort?
- are there any general barriers to learning e.g. time constraints?
- are adult learning principles being referenced?

Consider the course design
- the conditions of assessment; what is mandatory for the learner to do and access?
- the Performance Evidence; this should indicate the tasks that need to be demonstrated
- the Knowledge Evidence; are there any verbs at the beginning? this means it may not be able to be embedded into tasks
- the elements and performance criteria; where are the verbs?
- types of resources required
- does anything need to happen first?
- that performance criteria as are not always listed in a logical order for the task to be performed
- possible contingencies

- time available vs time required to demonstrate performance
- foundation skills; where are the trigger words in the performance criteria?

Activity 3 – Identify specifics

Identify any specific requirements or challenges that relate to technology, language and resourcing for learners in the Performance Evidence, Knowledge Evidence and Assessment Conditions.

What specific tools and equipment are used by the industry sector?

- verify the products, tools, machinery and Personal Protective Equipment (PPE) used in the job role and ensure they are incorporated into the training and assessment.

Consider specific references to organisational policies, procedures and legislation e.g. Work, Health and Safety (WHS)

- review the elements and performance criteria for references to specific legislation relevant to industry
- check knowledge evidence
- identify any specific policies and procedures that would need to be referenced in the delivery of training and assessment.

Consider industry terminology and learner's language, literacy and numeracy needs

- identify the terminology used in the industry sector and ensure that it is included in the training and assessment
- identify the Language, Literacy and Numeracy (LLN) requirements in the performance criteria and adjust to match the LLN routinely used in the industry sector.

Consider specific roles and industry requirements

- use training or job specifications to assist in contextualising Units of Competency.

Activity 4 – Assessment

It is advisable that trainers and assessors consider assessment tasks in the context of the specific industry sector when contextualising. Consider the use of

- class based group projects – benchmark development
- performance evidence
- knowledge assessment
- peer reviews
- projects – analysis, design and development
- simulation – digital and class based*
- workplace projects - advanced practice, leading teams, trials and reviews.

*In some of assessment activities, terms such as 'simulated environment' or 'simulated workplace' are used. 'Simulated' activities are designed to cater to those learners who don't have access to a workplace or where undertaking a workplace assessment is not practical.

It may even be that there is a need to contextualise a workplace based activity so it is completed in a simulated environment, depending on the learners' situation. When creating a simulated environment, it is important to consider

- equipment and facilities required and ensuring equitable access to them
- other participants/job roles required in the simulation to ensure a similar environment to the workplace
- creating a script and providing instructions for the participants in the simulation who are not under assessment

- providing clear and succinct instructions for the learner under assessment
- WHS considerations
- ensuring an unbiased situation for the learner in the simulation
- reproducing sign-in process e.g. time clocks or record of attendance, if required
- policies, procedures and codes of conduct that need to be replicated for the simulation
- creating teams or groups of learners to work together and assigning them specific roles
- documenting the assessment process and result
- methods of observation used during the assessment
- technical requirements for digital simulation
- the length of time the course is running for.

Consultation with operational managers, supervisors, team leaders and human resource personnel from the industry sector will help clarify the assessment contexts that are relevant to the learners.

Activity 5 – Review the training settings

When contextualising Training Package products and resource materials consideration should be given to the training setting.

Training in an educational institution

- use a network of industry contacts to ensure learning is relevant to industry practice
- invite guest speakers working in the industry to talk with the learners
- create simulated work environments with authentic details
- use current case studies to make it real for learners
- draw on learners' experiences of different workplaces
- use own workplace experience and stories
- spend time increasing your own knowledge of current best practice
- provide practical work experience with the institution as the workplace
- provide practical work experience with a local council, business or community organisation as the workplace, if possible
- invite learners who work part time to adapt activities to their own work situation.

Training in the workplace

- ensure that learning activities fit with the culture and mission of the organisation
- gain permission to use the protocols and manuals of the organisation as learning resources
- use direct examples from the workplace
- identify tasks and products that will be of immediate use to the organisation and create learning activities around them
- enlist the support of the employer to provide skills practice
- set tasks that learners identify as immediately valuable
- make use of workplace potential mentors
- use action learning activities to take advantage of real problem solving opportunities
- use any wider educational activities of the organisation, such as conferences, seminars and briefings, to broaden knowledge and understanding.

Training using an online/blended approach

- use resources that are designed to simulate the workplace
- develop enterprise specific games and quizzes
- use industry specific jargon and protocols in induction sessions whether online, face to face or via teleconference
- provide your contact details online, including industry experience
- provide opportunities for learners to collaborate and share workplace experience

- use the internet to gain access to world experts in the industry
- invite local industry contacts to join electronic discussion forums
- use the location and environment of learners as material for activities and assessments
- encourage learners to link up with a workplace mentor in their location
- encourage learners to link up with other learners in their workplace
- provide case studies of real workplace problems
- provide samples of authentic organisational documents as examples of good practice.

Advice for RTOs

Australia Industry Standards (AIS) recommends using the Compare Content Tool available on Training.gov.au for more information about specific changes to Units of Competency. Visit https://www.youtube.com/watch=EjhNe3Bu0H4 to watch a video on how to use this tool.

It is the responsibility of each RTO to monitor Training Packages relevant to its Scope of Registration and to identify when a new version of a Unit of Competency has been published. The national register, Training.gov.au, has the capacity to notify providers of changes to Training Packages.

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RESOURCES FOR CROSS SECTOR UNITS OF COMPETENCY

These resources are provided to assist trainers and assessors in the delivery of the cross sector supply chain Units of Competency.

Please note that Australian Industry Standards (AIS) does not endorse any businesses or products named in these articles.

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RESOURCES FOR CROSS SECTOR SKILL SETS

See cross sector Units of Competency for listed resources.

***** *See below for resources for Units of Competency from other Training Packages listed in the Skill Sets.*

TLISS99990X Supply chain financial management

TLIX9983X Manage fundamental aspects of supply chains

TLIX9996X Employ digital supply chain risk management practices

SIRRMRM007 Negotiate and establish supply arrangements

TLISS99991X Supply chain stock control

TLIX9999X Administer inventory systems

TLIX9998X Maintain stock control and receivals

TLISS99992X Value chain analysis

TLIX9985X Apply market supply systems

TLIX9996X Employ digital supply chain risk management practices

TLIX9991X Enable traceability in supply chains

MSS405002 Analyse and map a value stream

TLISS99993X Digital supply supervision

TLIX9992X Monitor digital supply chain services

AHCBUS405 Participate in an e-business supply chain

BSBMGT407 Apply digital solutions to work processes

TLISS99994X Digital supply chain operations

ICTICT104 Use digital services

ICPRN497 Work with digital information

TLISS99995X Establish a digital supply chain

TLIX9995X Lead digital supply chain implementation

TLIX9993X Build digital supply chain capability in the workforce

TLIX4035 Maintain technical data and information

ICTICT804 Direct ICT in a supply chain

AMPMGT809 Analyse data for business decision making

TLISS99996X International supply chain

TLIX9982X Work with global supply chains

TLIX9997X Participate in ethical supply chain practices

TLIX9996X Employ digital supply chain risk management practices

TLI9991X Enable traceability in supply chains

TLISS99997X Establish blockchain

TLIX9997X Establish blockchain in supply chains

TLIX9993X Build digital supply chain capability in the workforce

TLISS99998X Monitor supply chain operations

TLIX9997X Monitor ethical supply chain practices

TLIX9992X Monitor digital supply chain services

TLIX9987X Monitor compliance in digital supply chains

TLISS9999X Manage supply chains

TLIX9990X Manage supply chain mass customisation

TLIX9989X Manage customer focussed supply chains

TLIX9988X Manage outsourced supply chain operations

TLIX9983X Manage fundamental aspects of supply chains

BSBPUR504 Manage supply chains

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http://www3.weforum.org/docs/WEF_Impact_of_the_Fourth_Industrial_Revolution_on_Supply_Chains_.pdf

Videos/Podcasts

Creating the supply chain of the future – Spencer Fung, CEO Li & Fung – National Retail Federation, 2018
https://www.youtube.com/watch?v=pC3SePgVDt0
Series of videos/podcasts on supply chains (UK)
https://www.futureinsights.org/

- https://www.futureinsights.org/insights/2018/11/9/video-how-blockchain-can-transform-the-supply-chains-of-the-future
- https://www.futureinsights.org/podcasts/catherine-weetman-the-circular-economy-real-world-case-studies-and-advice-for-supply-chain-professionals
- https://www.futureinsights.org/podcasts/stephan-de-barse
- https://www.futureinsights.org/podcasts/andreas-wieland

Supply unchained: fighting supply chain labour abuse
https://www2.deloitte.com/insights/us/en/multimedia/videos/fighting-supply-chain-labor-abuse.html
Technology vs humanity: The future is already here – Gerd Leonhard
https://www.youtube.com/watch?v=DL99deFJYaI&list=PLanVbnXDg2UY6QzrqWiktpfJMFjBTjGSe
Tim Collins, Vice President of Worldwide Logistics at Amazon – Supply chain conference, 2017
https://www.youtube.com/watch?v=Okq0xvlagXo
Video series (eight part)
https://www2.deloitte.com/insights/us/en/learn/following-the-digital-thread/revolutionizing-supply-chains.html

Blogs/Websites

A savvy guide to the digital supply chain: How to evaluate and leverage technology to build a supply chain for the digital age
https://haslam.utk.edu/sites/default/files/GSCI.WhitePaper.Savvy_.FINALFORISSUU.pdf
Australian national blockchain – pilot of Australia's first publicly available blockchain
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Logistics viewpoints – supply chain blog on industry developments
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Series of podcasts on digital supply chains
https://www.ciotalknetwork.com/Topics/digital-transformation/
Series of podcasts on supply chains
http://supplychaininsights.com/podcast/
Straight talk with supply chain insights
https://itunes.apple.com/us/podcast/straight-talk-with-supply-chain-insights/id664901377?mt=2
Supply chain 24/7 – news, reports, case studies, white papers, webcasts and research
https://www.supplychain247.com/
Supply chain digital – online digital magazine with profiles on some of the most innovative companies, supply chain news and developments from across the world
http://www.supplychaindigital.com/
Supply chain podcasts
https://player.fm/podcasts/Supply-Chain
The circular economy lab – How QLD is catalysing the shift to a circular economy
https://circularecolab.com/
The Ellen Macarthur Foundation – works with business, government and academia to accelerate the transition to a circular economy
https://www.ellenmacarthurfoundation.org/
Top logistics podcasts: fifty informative podcasts on supply chain management, procurement, transport, and all things logistics
https://www.camcode.com/asset-tags/top-logistics-podcasts/

Twitter Feeds

@DeptDefence – official account of Australia's Department of Defence
https://twitter.com/DeptDefence
@gleonhard – based in Basel, Leonhard is a futurist and humanist focussing on the shifting relationship between technology and humanity https://twitter.com/gleonhard
@LogisticsMatter – based in Rotterdam, Graat runs Logistics Matter and is an excellent curator and who uses his Twitter feed to share industry news from around the web multiple times a day
https://twitter.com/LogisticsMatter
@ManhAssocNews – US based Manhattan Associates delivers supply chain solutions to businesses worldwide
https://twitter.com/ManhAssocNews
@SC_Matters_Blog – US based Bob Ferrari is a supply chain consultant and runs what's considered to be one of the top 10 blogs in supply chain management
https://twitter.com/SC_Matters_Blog
@Weaver_davidw – based in Germany, Weaver is the editor of All Things Supply Chain Blog and frequently retweets industry news. Brings high value with his commentary on the articles he reads, and curation of articles https://twitter.com/Weaver_davidw
@wef – based in Geneva, the World Economic Forum is the not-for-profit, international organisation for public private cooperation. Multiple posts per day on the most topical challenges of our time that face the global economy, its population and the planet
https://twitter.com/wef

Supply Chain Organisations

Australian Food and Grocery Council – https://www.afgc.org.au/

Australian Logistics Council – http://www.austlogistics.com.au/

Australian Supply Chain Institute http://www.asci.org.au/

Australian Trucking Association - https://www.truck.net.au/public/australian-trucking-association

Chartered Institute of Procurement and Supply - https://www.cips.org/en-AU/

International Association for Contract & Commercial Management - https://www.iaccm.com/

International Chamber of Commerce – https://iccwbo.org/

Logistics Association of Australia - https://sclaa.com.au/

Supply Chain & Logistics Association of Australia – https://sclaa.com.au/

Women in supply chain (network) - http://womeninsupplychain.com.au/

Supply Chain Careers

Executive

Supply Chain Director/General Manager	Postgraduate
Supply Chain/Logistics General Manager	Postgraduate
Supply Chain/Logistics Solution Design Manager	Postgraduate

Supply Chain Management

Supply Chain/Logistics Chief Analyst	Degree
Supply Chain Operations Manager	Degree
Supply Chain Chief Officer	Degree

Planning and Scheduling

Demand Manager	Diploma/Degree
Demand/Inventory Planner	Diploma/Degree
Supply Planner/Scheduler	Diploma/Degree
Supply Chain Planner	Diploma/Degree

Procurement and Purchasing

Procurement/Strategic Sourcing Director/General Manager	Postgraduate
Procurement /Strategic Sourcing Manager	Postgraduate
Contracts Manager	Degree
Category/Commodity Manager	Diploma/Degree
Purchasing/Procurement Buyer/Agent/Manager	Diploma/Degree
Procurement Analyst	Diploma/Degree
Buyer	Diploma/Degree
Purchasing/Inventory Officer	Certificate IV/Diploma

Sales

Sales Director/Manager	Degree
National/State Sales Manager	Degree
Marketing Manager	Diploma/Degree
Contract Account Manager/Executive	Diploma/Degree
E-Commerce Executive/Manager	Degree
Business Development Manager	Diploma/Degree
Sales/Marketing Analyst	Diploma/Degree
Sales Representative	Diploma
Category Executive/Analyst	Degree

Retail

Retail Manager	Degree/Postgraduate
State/Regional Manager	Degree
Replenishment Planning Manager	Degree
Space Planning Manager	Diploma/Degree
Store Manager	Certificate IV/Diploma

Customer Service

Call Centre Director	Diploma/Degree
Call Centre Manager	Diploma
Client Relationship Manager	Diploma
Customer Service Operator	Certificate III/IV

Freight Forwarding

Freight Forwarding Manager	Diploma
Freight Scheduler	Certificate IV
Freight Allocator	Certificate IV

Customs Brokers

Customs Manager	Diploma/Licence
Account Manager	Diploma/Licence
Customs Broker	Diploma/Licence

Stevedoring

Operations Superintendent	Adv. Diploma/Degree/Postgraduate
Container Terminal Manager	Certificate IV/Diploma
Automation Equipment Coordinator	Certificate IV/Diploma
Shift Supervisor	Certificate III/IV
Vessel Planner	Certificate III/IV/Diploma
Yard Planner	Certificate III/IV
Stevedore	Certificate II/III
Stevedore Manager	Diploma
Ship to Shore Automation Coordinator	Certificate II/III/Licence

Maritime

Ship Master/Captain	Adv. Diploma/Degree/Licence
Marine Pilot	Adv. Diploma/Degree/Licence
Marine Engineer	Adv. Diploma/Licence

Deck Officer	Certificate IV/Diploma/Degree
Ship Planner	Diploma
Integrated Rating/Deck Hand	Certificate III

Air

Operations Manager	Diploma/Degree/Licence
Duty Supervisor	Diploma/Degree/Licence
Load Supervisor	Certificate IV/Licence
Load Assembly Officer	Certificate III/Licence
Documentation Officer	Certificate II/Licence
Leading Hand/Store person	Certificate III/IV

Rail

Network Operations Manager	Certificate IV/Diploma
Network Controller	Certificate IV
Terminal Operator/Manager	Diploma
Network Operations Performance Officer	Degree
Train Controller/Scheduler	Diploma
Train Planner	Certificate IV
Freight Train Driver	Certificate IV
Project Manager	Diploma/Degree

Road

Line Haul Manager	Diploma/Degree
Site/Depot Manager	Certificate IV/Diploma
B Double/Semi Driver	Certificate III/IV/Licence
Scheduler	Certificate III/IV
Allocator	Certificate III/IV
Delivery Driver	Certificate II
Refrigerated Vehicle Driver	Certificate III/IV/Licence

Warehousing and Distribution

Network Design/Optimisation Manager	Postgraduate
State/National Distribution Manager	Postgraduate
Distribution Centre/Warehouse Manager	Diploma/Degree
Robotics/Software Engineer	Degree/Postgraduate
Logistician	Diploma/Degree
Logistics Resource Planner	Certificate IV/Diploma
Inventory Analyst/Manager	Diploma/Degree
Transportation Data Analyst	Degree/Postgraduate
Warehouse Supervisor/Leading Hand	Certificate III/IV
Freight Handler	Certificate II
Load Planner	Certificate II/III

Warehouse Assistant/Operative	Certificate II/III
Forklift Driver	Licence
Transport Planner	Diploma
Customer Service Officer	Diploma
Stock/Inventory Controller	Diploma
Import/Export Officer	Diploma
Storage and Distribution Manager	Degree

Manufacturing and Engineering

Operations Director/Manager	Degree/Postgraduate
Maintenance Operative/Manager	Diploma/Degree
Production Manager	Degree
Quality Manager	Degree/Postgraduate
Production/Planning Operative	Diploma/Degree
Reliability Engineer	Degree
Lean Specialist	Degree
Process Engineer	Degree
Project Engineer	Degree
Shift Supervisor	Certificate III/IV
Graduate Engineer	Degree
Materials Planner/Manager	Diploma/Degree

Finance

Financial Controller	Postgraduate
Accounts Administrator/Coordinator	Diploma/Degree
Commercial/Financial Analyst	Degree
Management Accountant	Degree

Human Resources

Human Resources/Industrial Relations Advisor/Manager	Degree
Learning and Development Manager	Degree/Postgraduate
Learning and Development Coordinator	Diploma/Degree
Workplace Health and Safety Manager	Diploma/ Adv Diploma/Degree
Work, Health and Safety Consultant	Certificate IV/Diploma

Information Technology

Information Technology Manager	Degree/Postgraduate
Systems/Solutions Architect	Degree/Postgraduate
Business Systems/Data Analyst	Degree
Systems Engineer	Degree
IT Support/Database Administrator	Diploma

Source: Department of Innovation, Industry and Regional Development Victoria 2009

Please note that this information is indicative of possible career opportunities that may be available in domestic and international supply chains. Career pathways depend on workplace and/or industry needs. Individuals holding lower level qualifications may gain credit toward higher level qualifications; those with prior experience may undertake a 'Recognition of Prior Learning' assessment to gain credit toward a qualification in the Vocational Education and Training (VET) sector. Please check with relevant tertiary institutions for recognition of VET sector qualifications when applying for entry into courses.

**Industry licencing requirements are not included in this information; specific details must be obtained from the relevant authorities.*

Digital Supply Chains Careers

The application of digital technology will impact nearly every aspect of supply chain operations in the near future. We are already seeing change, for example

- There is no longer any need to send, change or receive purchase orders on paper as all purchase order activity can now be managed electronically.
- Telephoning suppliers or transport carriers to find out where goods are will no longer be required as organisations will be able to track on a screen to see where their goods are and how quickly they are moving.
- Advanced robotics within manufacturing facilities and distribution centres means that all movements can be monitored, managed and adjusted from a control room.
- Analytics and big data will allow a focus on managing information provided by intelligent, thinking analytics applications.
- Control towers, enabled by end-to-end connectivity and digital integration of the entire supply chain, will enable oversight of supply chain operations.

While many of the basic functions that are performed in supply chains will continue, the way in which these skills are performed will change because of technology. Supply chain personnel will still require a solid working knowledge of the major key areas such as planning, procurement, category and commodity management, supplier relationships, logistics, sourcing, quality assurance, warehousing and inventory management.

Career opportunities in digital supply chains may include but are not limited to:

Business Creator
Demand Planner
Digital Supply Chain Architect/Engineer
Digital Supply Chain Blockchain Administrator/Manager
Digital Supply Chain Compliance Coordinator/Manager
Digital Supply Chain Consultant
Digital Supply Chain Contracts Coordinator/Manager
Digital Supply Chain Customer Satisfaction Coordinator/Manager
Digital Supply Chain Finance Analyst
Digital Supply Chain Information Systems Consultant/Manager
Digital Supply Chain Operations Manager
Digital Supply Chain Process Improvement Coordinator/Manager
Digital Supply Chain Project Officer/Manager
Digital Supply Chain Risk Coordinator/Manager Digital
Digital Supply Chain Traceability and Ethics Coordinator
Distribution Centre Operative/Manager
Global Sourcing Coordinator/Manager/Analyst Inventory Control Coordinator/Manager
Inventory Specialist
3PL/4PL Manager (Third/Fourth Party Logistics)
Process Manager Procurement/Sales/Data Analyst
Procurement/Sourcing Operative/Manager
Production Planner/Customisation Manager Project Coordinator/Manager
Quality Assurance Assistant/Coordinator/Manager

Resource/Sustainability Manager
Robotics Operative/Coordinator
Specialist Autonomous Delivery Coordinator/Manager
Supplier Relationship/Stakeholder Coordinator/Manager
Supply Chain Network Planner
Supply Chain Operations Support
Supply Chain Solutions Analyst
Supply Chain Tower Manager (Controller)
Transportation Coordinator/Analyst/Manager
Unmanned Aerial Vehicle (Drone) Operator

SUPPLY CHAIN GLOSSARY

A

Active Stock - Items currently available for sale, often classified as having frequent turnover.

Activity Based Costing (ABC) - A process to identify the costs associated with an organisation's activities. Each activity is assigned a relative portion of organisation overhead and raw material cost based on its percentage usage of resources.

Activity Ratio - Financial metrics used to gauge the ability of an organisation to convert various assets, liabilities and capital accounts into cash or sales. The faster a business is able to convert its assets into cash or sales, the more efficient it runs. Activity ratios include inventory turnover, receivables conversion period, fixed-asset turnover and return on assets.

Advanced Planning and Scheduling (APS) - APS is also known as advanced manufacturing. It refers to a management process whereby raw materials and manufacturing production capacity are optimally allocated to meet demand.

Automated Storage and Retrieval Systems (AS/RS) - Autonomously store pallets and packs using automated gantry cranes. These systems are more commonly seen in quick turn-around distribution centres. Compared to facilities with traditional racking systems, an AS/RS is capable of improving space utilisation by at least 60%.

B

Batch/Lot - The batch or lot number that links a trade item with information the manufacturer considers relevant to the traceability of that item. The data may refer to the trade item itself or to items contained within in it.

Bar Code - A product marker consisting of a series of printed bars and spaced representing numerical or alphanumeric values and read by bar code scanners using optical character recognition.

Bill of Lading (BOL) - A document issued by a carrier (Master of ship) to acknowledge receipt of a shipment of cargo from a consignor.

Blockchain - A distributed database that acts as a shared, immutable ledger for recording the history of transactions. Each block (a list of records) contains a timestamp and a link to a previous block. A blockchain is typically managed by a peer-to-peer network collectively adhering to a protocol for validating new blocks.

Bonded Warehouse - A customs controlled warehouse for the retention of imported goods until the duty owed is paid.

Business to Business (B2B) - A situation where one business makes a commercial transaction with another business.

Business to Consumer (B2C) - A situation where a business makes a commercial transaction directly with the end-users of its products or services.

C

Carrying Cost Rate - Percentage of inventory item cost incurred to stock that item in inventory for one year; generally, twice the cost of money. Typical elements of carrying cost include weighted cost of capital, taxes, obsolescence due to technology or regulation, security, cycle counting, insurance, shrinkage and depreciation.

Chain of Responsibility - The chain of responsibility is a policy concept used in Australian transport legislation to place legal obligations on all parties in the transport supply chain or across transport industries generally.

Circular Economy - business models keep products and materials in use, by design, for as long as possible to get the maximum value from them. It focuses on reshaping business and economic systems so that waste is 'designed out' of how we live. Circular economy business models can offer new commercial opportunities.

Collaborative Planning, Forecasting and Replenishment (CPFR) - A concept that aims to enhance supply chain integration and overall performance by supporting and assisting joint practices. CPFR encourages sharing of information and joint planning of key activities with all supply chain partners, including material providers, manufacturers, distributers and retailers. Collaboration encompasses business planning, sales forecasting and all operations required to replenish goods.

Consignment - A process whereby the inventory owner (consignor) sends goods to a distributer (consignee) who undertakes to sell them. The goods remain the property of the owner (consignor) until they are sold by the distributer (consignee) to a customer.

Container Freight Station (CFS) - A container freight station is a warehouse where goods are consolidated into or deconsolidated from containers for transport to their next destination.

Contracted Services – Contractor and subcontractor services provided in a supply chain. Digital supply chains will typically use and analyse data and performance from contractor/subcontractor devices, applications, cloud technologies and audit results.

Continuous Replenishment Planning (CRP) - A replenishment process where the manufacture and shipment of a product is triggered and aligned with the corresponding purchase by an end user.

Crowd Shipping - A spectrum of delivery options ranging from linking smaller carriers together, to creating a delivery network from scratch, by aggregating individual drivers, riders or walkers.

Customer Fulfilment Centre (CFC) - A facility which receives stock from a Distribution Centre or Cross-Dock and sends products to customers and stores.

Customer Focussed Supply Chains - customer centric supply chains are designed to focus on customers, putting their needs and experiences at the center. It is not just demand driven, supply chains need to study their audience and their preferences including order channels, lead times, delivery methods etc. and align them with supply chain operations.

D

Dangerous Goods - Stock items which pose a risk to health, safety or property, and that ordinarily require special attention when transported. Dangerous Goods are classified based on company specific rules and governing legislation.

Delivered in Full and On Time (DIFOT) - DIFOT is a common supply chain performance metric used to measure service level performance. All items on a given order must be delivered on time for the order to be considered as DIFOT. DIFOT is typically presented as a percentage out of 100.

Demand Planning System - A software platform which collects all sources of demand and supply information across a company's supply chain with the intent of producing reliable product location forecasts.

Demand Sensing - An enhancement of demand planning by integrating a broader and nearer to real time data set into the demand planning process to better predict customer demand.

Demand Signal - A signal from a customer to a supplier which triggers the issue of product or raw material.

Demand Signalling - The generation, capture and utilisation of customer demand data to provide faster and more convenient ways for customers to 'signal' their intent to purchase a product (e.g. Amazon Dash).

Digital Supply Chain - The impact of technology on supply chains has led to the term 'digital' supply chain (sometimes referred to as supply chain 4.0). This term is typically used when discussing the implementation of tectological disruptors such as the Internet of Things (IoT), blockchain, machine learning, automation, Artificial Intelligence (AI), big data, predictive analytics etc. that drive improvements to traditional supply chains.

Distribution - The process of making a product or service available for sale to the consumer. Distribution involves transportation, warehousing, inventory control and material handling. It includes all activities related to physical distribution, as well as the return of goods to the manufacturer.

Distribution Centre (DC) - A warehouse facility which holds inventory to be redistributed to retailers, wholesalers or directly to consumers.

Distribution Channel - A chain of businesses or intermediaries through which goods pass en-route to the end user or consumer. Distribution channels include wholesalers, retailers, distributors and the internet.

E

Electronic Data Interchange (EDI) - An electronic business communication method that allows automatic electronic transmission of agreed business data between trading partners.

End User - The final buyer of a product who is purchasing for immediate use.

Ethical Supply Chain Practices - The term ethical supply chain or ethical sourcing typically refers to labour practices and how workers are treated in terms of conditions and pay. Environmental impact is a large aspect, while ethical issues such as bribery and corruption are also considered.

F

First in First Out (FIFO) - A supply chain and accounting term used to describe the process of consuming inventory which was received first, prior to consuming inventory which was received last. FIFO is widely considered best practice over the alternative Last in First Out (LIFO) option.

Fourth Party Logistics (4PL) - Term used to describe service providers whose role is to ensure that supply chain relationships and cost efficiency are optimised by managing a variety of logistics related services for clients. 4PL often involves outsourcing the entire supply chain with service providers providing; procurement, storage, distribution and other process services.

G

Global Tracking Identification Number (GTIN) - A globally unique identification number used for trade items (products and services).

H

Human Readable Interpretation (HRI) - Characters that can be read by people (e.g. letters and numbers), as opposed to symbol characters within barcode symbols, which are read by machines.

I

Inventory - Items which are in a stock point or work-in-process and which serve to decouple successive operations in the process of manufacturing a product and distributing it to the consumer. Inventories may consist of finished goods ready for sale, parts or intermediate items, work in process or even raw materials.

L

Last Mile Delivery - Last mile delivery is the term used to describe the last leg of goods transportation from a distributer to the end user and/or customer.

M

Mass Customisation - Mass customisation enables customers to modify a base product to meet their specific needs, thus allowing for an increase in product variety, without the typically associated production and inventory holding costs. Mass customisation is a marketing and manufacturing technique that combines the flexibility and personalisation of custom-made products with the low unit costs associated with mass production.

O

Omni-Channel - A cross channel business model that companies use to increase customer experience. An omni-channel experience involves the simultaneous use of multiple sales/marketing channels at once, such as mobile phone, tablet and TV marketing inside a store. The term is also used to describe the consistency between different channels that facilitate and streamline customer interactions.

Optimal Replenishment Quantity (ORQ) - The average replenishment quantity that minimises the total annual cost for procurement, ordering, receiving, carrying, freight and providing sufficient inventory to meet or exceed service level specified for the item.

Outsourced Operations - Contract logistics companies (3PL/4PL) handle activities such as designing and planning supply chains, designing facilities, warehousing, transporting and distributing goods, processing orders and collecting payments, managing inventory and even providing certain aspects of customer service.

P

Procurement - The business function of acquiring goods or services from an external source, often via a tendering or competitive bidding process.

Pull Distribution - An inventory system in which a minimal amount of stock is kept on hand and inventory items are replaced as they are pulled from the warehouse to fill specific orders.

Push Distribution – Relates to the idea that companies want to 'push' their products to consumers at the point of sale. Common sales tactics of push distribution include trying to sell merchandise by negotiating with retailers to sell their products for them or set up point-of-sale displays.

Q

QR Code - A two dimensional matrix symbol consisting of square modules arranged in a square pattern. The symbology is characterised by a unique finder pattern located at three corners of the symbol.

R

Radio Frequency Identification (RFID) - A data carrier technology that transmits information via signals in the radio frequency portion of the electromagnetic spectrum.

Receivals - Receivals is the function of checking items delivered as new stock or supplies. It requires the inspection of goods and materials for quality, condition and quantity and the allocating of space in the storage facility or warehouse.

RFID Tag - A microchip attached to an antenna that sends data to an RFID reader. It contains a unique serial number and can also contain additional data. RFID tags can be active, passive or semi-passive.

Risk Management - A digital supply chain establishes new links inside the company and with the third parties in the end-to-end supply chain. The rise in critical intellectual property being stored and shared digitally puts confidential information, trade secrets and personally identifiable information at risk. These vulnerabilities present a greater need for rigorous and transparent risk management that incorporates cybersecurity.

S

Stock Control - Stock control involves the monitoring and managing of an organisation's stock. It applies to all stock at every stage of the production process from purchase and delivery to using and reordering stock.

Stock Keeping Unit (SKU) - Lowest level at which an inventory is measured and/or controlled; can be a raw material, purchased part, manufactured part, operating supply or finished good; synonymous with inventory item.

Supplier - The party that produces, provides or furnishes an item or service.

Supply Chain -

- A system of organisations, people, activities, information and resources involved in moving products or services from supplier to customer. Supply chain activities involve the transformation of raw materials into a finished goods that are delivered to the end user or customer.
- The total sequence of business processes, within a single or multiple enterprise environments that enable customer demand for a product or service to be satisfied.
- The network of organisations that cooperate to transform raw materials into finished goods and services for consumers

Supply Chain Sustainability - The management of environmental, social and economic impacts and the encouragement of good governance practices, throughout the lifecycle of goods and services. The objective of supply chain sustainability is to create, protect and grow long term environmental, social and economic value for all stakeholders involved in bringing products and services to market.

Subcontractor - An external party whom a logistics service provider hires to perform a specific task as part of an overall transport movement. For example, a freight forwarder may hire a road subcontractor to perform one road leg of a larger movement where it is more cost effective or they have insufficient resources of their own to perform that task.

T

Third Party Logistics (3PL) - Refers to providers of logistics related services performed on behalf of a manufacturer. Services might include storage of goods, processing of orders and packaging and distribution of inventory.

Traceability - Supply chain traceability allows businesses to track products from source to consumer. It connects all the points in the supply chain. A digital supply chain allows for real time updates on suppliers and products and process performance and how they relate to each other.

U

Upstream - The direction of movement of goods away from the customer and towards the manufacturer.

W

Warehouse - A place for the recept, delivery, consolidation, distribution, and storage of goods/cargo.

Sources

GRA Glossary
Logistics Bureau

FEEDBACK AND CONTRIBUTIONS

In time, these Companion Volume Implementation Guides (CVIG) and Compendiums will provide an opportunity to showcase best practice from RTOs and provide a forum for sharing information and resources. If you have any resources, case studies or feedback to contribute please provide your feedback via

AIS website: https://www.australianindustrystandards.org.au/contact-us/
Email: enquiries@australianindustrystandards.org.au