



SSACI

Dual System Apprenticeships Pilot Project

Summative Evaluation Report

Prepared by



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LIST OF ACRONYMS

A21	Artisan of the 21 st century
CETA	Construction Education and Training Authority
CPD	Continuous Professional Development
DHET	Department of Higher Education and Training
DSA	Dual System Apprenticeships
DSAP	Dual System Apprenticeships Programme
DSAPP	Dual System Apprenticeships Pilot Project
EPR	Expenditure Performance Review
FET	Further Education and Training
FLP	Foundational Learning Programme
HR	Human Resources
HRD	Human Resource Development
HRDSA	Human Resource Development Strategy of South Africa
IPAP	Industrial Policy Action Plan
merSETA	Manufacturing, Engineering and Related Services Sector Education and Training Authority
MHET	Minister of Higher Education and Training
MoA	Memorandum of Agreement
NADSC	National Artisan Development Support Centre
NAMB	National Artisan Moderating Body
NATED	National Accredited Technical Education Diploma
NOCC	National Occupational Curricula Content
NTCC	National Trade Curriculum Content
NTCS	National Trade Curriculum Statement
NYC	Not yet competent
PoE	Portfolio of Evidence
QA	Quality Assurance
QCTO	Quality Council for Trades and Occupations
RPL	Recognition of Prior Learning
SEIFSA	Steel and Engineering Industries Federation of South Africa
SETA	Sector Education and Training Authority
SIPs	Strategic Infrastructure Projects
SOE	State Owned Enterprise
SSACII	Swiss-South Africa Cooperation Initiative

EXECUTIVE SUMMARY

Government Plans and Strategies such as the Human Resource Development Strategy of South Africa: 2010 – 2030 (HRDSA), the Industrial Policy Action Plan (IPAP), the National Skills Accord, the National Development Plan (NDP) and Strategic Integrated Projects (SIPs) all call for projects and initiatives which will expand the infrastructure and economy of South Africa – qualified artisans are central to the skills needs of those initiatives.

The current artisan supply system is ineffective and does not produce the required results. Following a visit to Germany and Switzerland by the Minister of Higher Education and Training, a decision was taken to pilot the dual apprenticeship system in South Africa with selected public TVET Colleges and participating employers in an attempt to improve on the prevailing system. This pilot commenced in 2013 and after considering various options, initially settled on two projects – the training of mechatronics artisans at the Port Elizabeth College with Volkswagen, Continental and Johnson Controls as the participating companies and secondly, the training of welders at the West Coast College with Dormac and Westarcor participating. The Port Elizabeth project could not be concluded and had to be deregistered from the dual system pilot but was replaced with the training of vehicle body builders with the Randfontein campus of WestCol and Busmark participating.

The Swiss/German dual apprenticeship system

The dual apprenticeship system combines a formal apprenticeship where an apprentice is employed in a company and a broader vocational education programme at a vocational school or college in one integrated programme which culminates in a trade test as well as a vocational qualification.

As part of the dual artisan programme, apprentices are working and given on-the-job training in a company for two to three days a week. The company is responsible for ensuring that apprentices get the standard quantity and quality of training embedded in the training descriptions for each trade. Rapid rotation between theory presented by the school/college and workplace exposure is central to the success of the dual system in Germany and Switzerland.

The South African apprenticeship system

The post-apartheid system in South Africa resulted in various new routes to obtain a technical qualification and to arrive at a trade test. Various forms of learnerships, skills programmes and RPL were instituted – this all led to a general move away from apprenticeships as the accepted route to a trade. To overcome some of the challenges, a “Seven Step Model” was devised to

guide the process of artisan development nationally. Various structures under DHET such as the National Artisan Moderating Body and the National Artisan Development Support Centre were established to guide and manage the artisan development process.

Dual System Apprenticeships (DSA) Pilot Project

Historical process evaluations and action research

The implementation of the pilot projects was carefully monitored by SSACI.

- A process evaluation and mid-term evaluation was executed by an independent, external service provider
- SSACI conducted its own surveys of employers, apprentices and colleges.

These evaluations and surveys all reported very positively on the dual system both in terms of process and how employers, apprentices and colleges experienced it – there is without exception strong support for the dual system to be continued and rolled out on a larger scale.

Summative evaluation

Port Elizabeth Pilot Project

This project commenced with 20 apprentices in the mechatronics trade although eventually only 16 participated. By March 2015 the project had to be deregistered as a dual system pilot project for various reasons of which one of the most important was that there was no trade test in place for mechatronics. Secondly, whilst all apprentices have completed NC(V)2 and were engaged in NC(V)3, one employer (VW) did not allow the apprentices onto the factory floor as the employer regarded their basic (hand) skills lacking and required the apprentices to first complete the NC(V)3 full-time and then return to the apprenticeship – this clearly violated the intention of the dual system apprenticeship pilot project.

West Coast Pilot Project

The West Coast project commenced mid-2013 and was concluded at the end of 2015. Originally 30 apprentices were to participate – 6 to be employed by Westarcor and 24 by Dormac. However in practice only 22 were contracted by Dormac and two of the six apprentices to be employed by Westarcor left the pilot prior to signing any contract. Therefore the pilot commenced with 24 apprentices. All apprentices were trained for the welding trade and the participating college was the West Coast College. Over the duration of the project there was an attrition of 10 apprentices (mainly due to the fact that they could not pass mathematics after several attempts). Eventually

16 attempted the trade test of whom 13 successfully passed the trade test (after one or more attempts).

Randfontein Pilot Project

The Randfontein project commenced with 24 Vehicle Body Builder apprentices in April 2015 and is still continuing (trade tests will be taken by September 2017) with 23 active apprentices. This project is implemented with WestCol (Randfontein Campus) being the theory provider and Busmark the employer.

Findings from the two pilot sites include:

- There are difficulties involved in integrating the NC(V) programme¹ and curriculum with the dual apprenticeship system. It is not impossible to achieve but much more work is needed, than was done by West Coast College, to adapt both the curriculum and the structure of delivery if it is to work effectively. The decision in Randfontein to use the Nated programme as theory is a logical one.
- Attention needs to be paid to the maths ability of the apprentices and action taken where necessary to address weaknesses.
- With a single large employer involved in Randfontein, resources were found to address the many challenges that arise. With a number of companies involved there is a need for substantial project management and coordination. Many things need attending to and much can go wrong, and did. Continuous monitoring is needed to ensure that all parties do what they are supposed to be doing.
- Apprentices need to be properly employed by the employer and there should be no misunderstanding that they are employees of the company who are doing an apprenticeship.
- There needs to be close collaboration between the college and employers to ensure that workplace exposure sufficiently covers all elements of the curriculum for the specific trade.

¹It should be noted that MAS does not imply that the NC(V) is not a valuable programme or that it is not contributing to technical knowledge and skills. The evaluation simply found that the NC(V) programme, in its current format, is not suitable for integration with the dual apprenticeship system. The current review of the NC(V) programme attempts to address shortcomings that may exist.

- There is a need for the tradesmen/mentors to be properly briefed and orientated to guide apprentices effectively and understand the relationship between the work being done and the requirements of the trade test. Foremen, tradesmen and mentors need to be well orientated and should be clear as to their role.
- It is very beneficial to have a liaison person in place – a “go to guy” who will address challenges as it appears and to continuously guide the implementation process.

Other findings

The business plan for the dual system apprenticeship pilot project was not limited to piloting the dual system only. It also set out to achieve some other deliverables. The most prominent other findings of this summative evaluation are:

- Clear and dedicated project management by SSACI contributed to the success of the dual apprenticeship system pilot project. However, the size of the project management task, particularly in the context of more than one employer participating, was underestimated.
- Difficulties were experienced with the role played by merSETA: the mechatronics pilot project had to be deregistered as there was no trade test in place and the merSETA had to contend with the challenge of NC(V)2 learners not having sufficient basic skills; the COMET instrument was applied to the welding apprentices on a limited basis; there were apprenticeship contractual issues, including two different contracts within one apprentice cohort²; monitoring over the period of the pilot projects was less than ideal; employers were approved for participation even though they did not have the range of work required for the trade test; gaps and problems were not identified timeously and addressed.
- A competence assessment instrument was instituted (although limited as mentioned above).
- Two occupationally directed qualifications and curricula were developed (electrician and plumber).
- From the pilots a model for implementing the dual system emerged and best illustrated by the Randfontein pilot project (which is still on-going). However, the limitation is that

² This challenge arose from the fact that whilst some (mainly larger and medium) companies were bound by the Industry Bargaining Council Agreement, small companies are exempt from Bargaining Council Agreements and therefore fall under the Sectoral Determination Rates as originally set by the Minister of Labour for learnerships.

this is a model suitable only for large, single employers, and so is not replicable for smaller, multiple employer projects.

- Action research reports were generated.
- The NADSC data was interrogated and a comprehensive report produced.
- The tracking study of progression of apprentices was not concluded and is still in progress. This delay is mainly due to the NADSC having moved from the Ekurhuleni College to INDLELA and the poor quality of available information) received from across many SETAs.
- A tracing study of newly certified artisans was concluded and accompanied by a comprehensive report.

Collectively, these findings enabled the evaluators to answer the following four key questions;

Have the implementing partners done what they undertook to do?

The steering committee, SSACI, merSETA, colleges, employers and DHET have mainly delivered on their briefs. However, there were gaps in the designated tasks and the level of detail set out for tasks was not adequate to clearly determine whether everything stated in the business plan was done. What is clear is that in Randfontein much more of what needed to be done was done than in West Coast, where although significant efforts were made it was not enough to achieve the desired results. Taking each of the stakeholders:

In the case of SSACI:

SSACI's key role was project planning and management. This included a long list of task set out in the business plan.

- Generally, SSACI did what was agreed they should do. However, a critical issue was to determine what needed to be done. The task of project management was underestimated.
- Although SSACI did what was required of them in terms of the business plan, the level of detail in the plan was not adequate and there were gaps. In future it would be wise to develop a detailed implementation plan that more clearly sets out the tasks and responsibilities of participants throughout the three years of the project.
- Another challenge with project management was the failure to escalate issues that were the subject of disagreement in the steering committee, particularly between SSACI and the SETA.

- There is a need for a clear Theory of Change or Logframe to guide the process. This was not required but is a gap.

In the case of the colleges:

The key challenge for colleges was to deliver theoretical learning and practical training and to structure provision to enable frequent turnaround between college and workplace. The aim was to achieve this through a restructured NC(V), though it was also agreed that Nated courses could be the basis for this.

- There was some restructuring of the Nated curriculum in Westcol to integrate with workplace requirements. In the case of the West Coast College the NC(V) curriculum was matched to the modules of the welding trade and unit standards of the relevant learnership. Even though a comprehensive guide for sign-off was implemented, it remained challenging to implement the dual system apprenticeship in conjunction with the NC(V) programme.
- The fact that learners were attending NC(V) classes and when returning from two weeks in the workplace were required to “catch up” indicates that the college programme was not sufficiently restructured to meet the needs of the apprenticeship.

In the case of the employers:

Employers were required to recruit and select apprentices, employ them for the duration, provide apprentices with work experience, release them to attend college classes, support and mentor them and ensure that log books were kept.

- In Randfontein the apprentices were genuine employees of the company and treated as such. However, in the case of Westacor and Dormac although the contracts were in place and the learners were technically employees they were in most respects treated as college learners who were “placed” with the employer.
- Dormac and Westacor did not provide the range of work experience needed, nor did they make arrangements for such experience to be gained elsewhere.
- There was better preparation of supervisors and mentors in Randfontein than in the West Coast and this was an important factor.
- There was some conflation of work experience and simulated work, and so it is unclear whether adequate amounts of real work experience were achieved.
- There was limited formative assessment done in the workplace and so apprentices were sent to the trade test before they were fully ready.

In the case of merSETA:

The merSETA was responsible for approving the qualification, programme and the workplaces, putting in place apprenticeship contracts, paying grants and then monitoring and quality assuring.

- The Port Elizabeth project was let down by the necessity to deregister the site mainly due to the lack of a trade test and conflicting approach between the college and employer, VW in applying NC(V) by the college and a learnership by the employer. Whilst these were not entirely in the SETA's control the responsibility lay with the SETA and it was unable to deliver on these essential elements of the planned pilot.
- In the West Coast project, the workplace approval process and monitoring of work experience was a problem. Monitoring in particular seems to have been very weak, but this is probably due to the fact that "hands-on" monitoring was not specifically documented as a requirement. The fact that some apprentices were allowed to go ahead and be tested without having experienced the full range of work covered in the trade is an indication of the seriousness of this gap.
- merSETA arranged for contracts and funding for all the apprentices. However, they allowed two types of contracts (learnership and apprenticeship) which meant that two stipends were paid and this caused friction.

In the case of the Department of Higher Education and Training:

DHET was mainly responsible for funding and policy, and because TVET colleges are located there, the Department was responsible to ensure colleges did what was expected of them.

- The Department of Higher Education and Training was able to deliver funding via the merSETA.
- The Department also issued a Gazette in 2015 that provided a sound framework for the dual system. So the Department's key role of providing a policy and regulatory framework was achieved.
- However, as it became clear that there were problems with the theoretical and practical training components of the programmes and challenges with integration and the Department did not follow up with the colleges and rectify the situation. On the West Coast, when it was discovered that there was no mathematics teacher and this was having a negative impact, it was SSACI not the Department that addressed the problem by funding additional lecturer time.
- The fact that different contracts and rates can apply with one cohort of apprentices is unacceptable and DHET should lead a process to rectify this anomaly.

Have they done it well?

In Randfontein (where the pilot project is still ongoing) it is progressing better than on the West Coast. A key factor is that the NATED curriculum rather than the NC(V) curriculum was used. The project is also being executed well as a result of good project management, high level of integration between theory and workplace exposure, close partnership arrangement between the college and employer and high quality liaison services provided by SSACI. No problems were experienced with merSETA processes, which indicates that where large employers are involved who have the resources to address HR and HRD issues, the SETA processes worked well.

On the West Coast there were a number of problems in the workplace experience provided. Firstly, companies did not have the range of work needed and did not make plans for gaps to be addressed. This was not picked up until the trade test, when it was too late to correct. Secondly there was inadequate induction conducted and so the expectations of supervisors and workers was unclear. So even though Dormac apprentices were contracted as workers, they understood themselves to be learners of the college placed with employers and the supervisors also saw them as such. There was no formative assessment being done in the workplace, and so gaps in skills were not identified. The mentoring function was not strongly conceptualised and developed, with no training being provided either on mentoring or assessing. Finally, the fluctuation in workload of employers had a negative effect – at times they were too busy to attend to apprentices and at other times they had no work at all to expose them to. More effort should have been made to integrate the NC(V) curriculum with workplace exposure. Plans should also have been made earlier to provide alternative work when order books ran dry in Saldanha.

So overall the conclusion has to be that the Randfontein stakeholders did what was required and did it well, seemingly going well beyond what was expected of them. On the West Coast a good deal of effort was made by all concerned but they fell short of what was needed. However, one cannot conclude that Randfontein was a “good” model or that the project on the West Coast was a failure. Randfontein worked because there was a single large employer with real needs and a determination to train for these needs, whereas on the West Coast there were smaller employers with less need for the artisans being trained and less capacity to ensure a good workplace experience. In many ways the problems of the West Coast are likely to be typical of those that will be experienced when more small companies are involved. The stakeholders in the West Coast needed much more external support and assistance than did those in Randfontein.

Other secondary deliverables of the project were executed as envisaged in the business plan with the exception of the tracer study which was (and still is) hampered by poor quality of SETA information. The poor quality of many SETA's information is also the main reason for concluding the tracer study with a much reduced sample of former apprentices than envisaged.

Have the inputs led to the desired outputs/outcomes or are they likely to do so?

The COMET instrument indicated that DSAP learners scored approximately 30% higher than their full-time counterparts – this is an indication that desired outputs were attained. This is a crucial finding in the context of prioritising artisan development in South Africa – it underscores the belief that the dual system of training artisans will result in a better quality product, more aligned to the needs of industry. However the results in the West Coast were not good. Out of the 30 apprentices originally identified and interviewed, only 24 were contracted, 16 took the trade test and 13 had passed (after one or more attempts) at the time of the evaluation. However, whereas in the Randfontein project there is optimism that the throughput and pass rates will be high, on West Coast they were lower than average pass rates nationally.

What can be learnt from this experience?

Given the feedback from employers, colleges and apprentices, during process evaluations, surveys and this summative evaluation, it can be concluded without a doubt that the DSA is both relevant and implementable in South Africa. It will however require flexibility from all parties, careful and joint planning, sound project management and a high level of commitment. It is also clear that the NC(V) programme, in its current format, is not ideal to be integrated with the DSA and that concerted efforts need to be made to ensure that occupational qualifications and curricula are in place, firstly for critical trades and secondly for all trades.

This was a small pilot and it is advised that the findings of this pilot needs to be integrated with those of the GIZ supported initiative which is currently under way. For the purpose of this section of the report it was felt that the policy framework in the 2015 Gazette would be sensible guide. In implementing the policy, what lessons can be learned that will improve implementation? Using the new Seven Steps as suggested in the Gazette³ the following lessons can be learnt.

³Government Gazette, 11 August 2015

Career management. Prior to establishing an artisan programme and recruiting apprentices, there should be a study of regional economy. Potential apprentices need to be informed of the job situation prior to the commencement. SETA research units are well positioned to provide such regional intelligence.

Recruitment and selection needs to be restructured. Whilst companies should have their own individualised recruitment and selection practices, it will be helpful if the various selection tools (e.g. DHET's selection tool, college profilers) are integrated into a standardized tool and companies should be motivated to adopt this tool as part and parcel of their recruitment and selection practices.

Learner contracting. NAMB and SETAs should enforce the standardised apprenticeship contract. There should be no doubt in the mind of the employer, college or apprentice that the apprentice is an employee of the company. The current contract should be interrogated to ensure the legality of it within the DSA context. Detailed matters should be addressed, such as the possibility to “sub-contract” apprentices to other employers in order to expose them to elements of the trade not available at the contracting employers. There is a need for a model of contracting that allows for multiple, particularly small, employers and workplaces.

Knowledge and practical. NC(V) in its current format is not ideal to be integrated with the DSA. NAMB and relevant SETAs must prioritise the development of occupational qualifications and NOCC for each trade. However even when the occupational qualifications are developed, there will be a need for detailed planning in order to achieve the correct balance of theory, practical training and work experience. A detailed plan must be developed that sets out what will be done at each stage over the three years and is specific as to the roles of each of the stakeholders. Particular attention will need to be paid to the practical training and whether the college has the required machinery and appropriately trained trainers. Also the work experience needs to be mapped to ensure that all competencies required for the trade test are covered.

As occupational qualifications do not focus on foundational learning, consideration should be given to the development of a standardised foundational learning programme as a precursor to an apprenticeship.

Development of College staff as an integral part of the knowledge and practical component of the seven steps. Relevant continuous professional development of college lecturers and other staff needs to be prioritised and fast tracked.

Workplace. The workplace schedules and processes should drive the implementation process – theory and simulated practice should be integrated with workplace requirements and not *vice versa*. There should be agreed times for workplace experience and agreed times for study in a college. The exact amount of time can be flexible both in relation to each year of the 3-year programme, and between different trades. However, the principle must be speedy implementation of the theory in a real work situation. This is not easy to achieve and calls for a strong partnership arrangement between workplaces and colleges, detailed planning and scheduling and active monitoring and quality assurance.

This will require SETAs to adopt a more “hands-on” approach when the DSA is implemented and not only limit themselves to contract management and the payment of grants. SETAs will have to take up a leadership role in assisting employers and colleges with the integration process. This implies that SETAs will have to capacitate themselves for this work. One of the important aims of SETA engagement should be to identify and appoint a liaison person from the college or employer to facilitate the process at the coal face – “a go-to-guy”.

A clear distinction needs to be made between workplace experience and training in a simulated environment. Clear guidelines are needed as to what can be recorded in a log book as actual work experience.

Participating employers should meet a number of basic requirements that should be determined by NAMB and checked by the relevant SETA. Particular attention should be paid to the number of qualified artisans employed, the range of work in the company and the identification and training of mentors. Care should be taken not to allocate an excessive number of apprentices to a workplace.

A standard mentor training pack should be developed and efforts should be made to ensure that all mentors undergo training prior to or during the apprenticeship.

It is advised that a comprehensive DSA implementation guide be developed addressing the total process and clarifying matters such as flexibility, support structures, liaison and communication, rapid corrective action and how to engage factory floor technical staff.

Trade Testing. SETAs should in their leadership role and in monitoring and quality assurance processes ensure that apprentices are prepared for their trade test in all facets of the trade. Apprentices should only be tested once they are ready and all the requirements of the trade have been met. This means ensuring that they have the full range of knowledge, skills and experience required to take and pass the test.

Attention needs to be paid to formative assessment and the ability of workplace mentors to determine an apprentice's readiness to be tested. Consideration should be given to including some assessor training in the mentor training programme so as to support mentors in their formative assessment role.

Authorities should ensure that the necessary trade tests are in place and that there are staff and facilities to execute the actual trade test.

Certification. The delay between the completion of the trade test and issuing of trade certificates needs to be reduced. The DHET proposed web-based trade testing and certification system is supported.

Quality assurance. SETAs must become actively involved in the monitoring and regular workplace quality assurance. Whilst not a quality assurance tool, the COMET diagnostic tool is a valuable instrument to monitor competency development and can assist in continuous improvement and corrective actions.

Quality assurance needs to be defined more clearly to include: workplace and employer approval; supporting mentoring and formative assessment in the workplace; monitoring work experience, including the range of work available and the ratio of qualified artisans to apprentices; supporting and monitoring the integration and alignment of theoretical learning, practical training and work experience; monitoring work experience and the log books to ensure that genuine work experience is being provided; taking action when things go wrong.

SETAs should also monitor the effectiveness and sustainability of artisan training. Through tracer studies, the numbers and percentages of artisans gaining employment should be established and reported on.

Summary of Recommendations

The recommendations are structured in accordance to the new (revised) "seven steps to become an artisan" as proposed in the August 2015 Gazette.

Career development

- Establish demand and ensure that demand drives the programme.
- Communicate the demand effectively
- Put in place an effective selection and recruitment processes
- Develop a standardised selection tool for adaptation by employers.

Learner contracting

- Establish the principle that an apprentice must be an employee of the company.
- Develop a funding and administration model for more than one company.
- Ensure that only one contract and a standardised wage can be used for an apprentice.
- Organise induction to establish clear expectations and commitments from all involved.

Knowledge and practical training

- Detailed planning must be done. A three-year programme needs to be agreed and a detailed implementation plan developed. Roles and expectations need to be clearly spelt out in the plan.
- The theoretical component needs to be defined. Some adaptation is needed to ensure that it is structured to achieve the competencies required for the trade.
- Practical training need to be clearly spelt out with access to relevant machinery and appropriately qualified trainers.
- The programme should spell out how the theoretical and practical training will be put into practice in the workplace. There should be no “gaps” in the programme and all competencies required for the trade test should be addressed.
- Maths must be tested. All apprentices must be at the required foundational level.
- Participating public TVET college must plan for: programme design; administrative support; communications; the development of lecturer capacity and experience, including relevant CPD programmes with workplace exposure.
- SETAs should create closer links between employers and public TVET colleges.
- The dual system will require a total mindshift within TVET colleges if the intentions of the White Paper on PSET that “... it is essential that they (*TVET Colleges*) develop and maintain close working relationships with employers in their areas⁴” is to be achieved.
- A review of the funding model for TVET colleges is required if they are to be responsive to embrace the dual system of training artisans.

⁴ White Paper on Post-school Education and Training, November 2013

Workplace

- Ensure regular alternation between theoretical learning, practical training and work experience. There is no ideal period for each. Flexibility is suggested: different amounts of time in each of the three years, and between different trades
- Clear distinction should be made between actual work experience and training. Training or “simulated” work experience do not count as actual work experience. Adequate time doing actual work needed.
- The contracting and induction processes need to ensure full understanding of all the role players
- Participating employers to meet a number of basic requirements that should be determined by NAMB and checked by the relevant SETA
- Care should be taken not to allocate an excessive number of apprentices to a workplace
- A standard mentor training pack should be developed and efforts should be made to ensure that all mentors undergo training prior to or during the apprenticeship
- SETAs should develop the capacity to conduct hands on support to employers and develop workplaces and the effectiveness of workplace learning.
- Locally based staff are needed to support a cohort of apprentices employed by a number of employers. The coordinating and monitoring role of such staff needs to be clearly defined.
- The SETA should take the lead and initially fulfil this role, which should include trouble shooting and intervening when things go wrong.
- For the dual system to work effectively and be rolled out on a large scale, the pilot will have to be expanded substantially to gain a better insight into the roles of various parties to an apprenticeship programme with regards to matters such as coordination when multiple employers are involved, the delineation of responsibilities between employers, colleges and SETAs, streamlining and adjusting the funding model. Only once these matters have been clarified can DHET and stakeholders reconsider current policies and implementation structures to suit the DSA in South Africa.

Trade Test and ARPL

- Apprentices should only be tested once they are ready. This means ensuring that they have the full range of knowledge, skills and experience needed to take and pass the test.
- Formative assessment needs to be done. Workplace mentors should determine an apprentice’s readiness to be tested. Assessor training should be included in the mentor training programme.

Urgent attention needs to be given to ensuring that an appropriate number of trade test centres are in place.

Certification

- Once a person has passed the trade test, certification should be a speedy process. It is important that a person can quickly seek employment based on the qualification.

Quality Assurance

- SETAs should develop capacity to focus more directly on workplace learning.
- SETA quality assurance should include: workplace and employer approval; supporting mentoring and formative assessment in the workplace; monitoring work experience, including the range of work available and the ratio of qualified artisans to apprentices; supporting and monitoring integration and alignment of theoretical learning, practical training and work experience; monitoring work experience and the log books to ensure that genuine work experience is being provided; taking action when things go wrong.
- The COMET instrument should be retained and applied.
- SETAs should monitor the effectiveness and sustainability of artisan training. Through tracer studies the numbers and percentages of artisans gaining employment should be established and reported on. This requires that SETAs keep accurate data on apprentices, including contact details.

1 INTRODUCTION

1.1 Background

Government plans and strategies such as the Human Resource Development Strategy of South Africa: 2010 – 2030 (HRDSA), the Industrial Policy Action Plan(IPAP), the National Skills Accord, the National Development Plan(NDP) and Strategic Integrated Projects (SIPs)all refer to the need for qualified artisans in South Africa.

In order to ensure that there are sufficient artisans to serve the current and future needs of the economy, ambitious targets have been set and in the process, various initiatives are under way in support of increased enrolment of apprentices and accelerated programmes to increase throughput and pass rates, which have for many years been very poor – just over 50% during the period 2011-2013. A National Treasury performance and expenditure review in 2012/13 concluded that the cost of achieving the National Development Plan target of 30 000 artisans per year would be difficult to sustain unless the proportion of those completing and passing the trade test increases substantially.

The Department of Higher Education and Training (DHET) decided to consider the German and Swiss dual system for apprenticeship training in order to increase the efficiency and effectiveness of artisan development. After a visit to both countries by the Minister of Higher Education and Training (MHET) accompanied by a high-level delegation, it was decided to pilot the dual apprenticeship system in South Africa. In April 2013 a Memorandum of Agreement (MoA) was signed between the Swiss-South Africa Cooperation Initiative (SSACI) and the DHET, wherein SSACI was appointed as the management agency for a pilot project.

The project was initially planned to be executed in three locations: Port Elizabeth, Richards Bay and Saldanha Bay in the West Coast. In Port Elizabeth, the Port Elizabeth Technical and Vocational Education and Training (TVET) college would pilot the mechatronics trade, in Richards Bay, the Umfolozi college would pilot electricians whilst on the West Coast, the West Coast College would pilot the welding trade. At a later stage Randfontein was added to the pilot, with WestCol (vehicle body building) being the participating TVET college. Although the pilot project in Port Elizabeth started, it was not concluded as a Dual System Apprenticeships(DSA) pilot project and the Richards Bay possibility did not commence at all. Eventually the pilot project was confined to the West Coast and Randfontein. The Randfontein pilot site is still in progress and trade tests are expected to be taken in August or September 2017.

Table 1 provides details of the West Coast and Randfontein project sites in terms of employers engaged, participating colleges, the trades, theoretical learning applied and the number of apprentices per employer. (It should be noted that in the case of the West Coast the target number of apprentices to be engaged in the DSAP was 30 but only 26 were eventually contracted.)

Table 1: Details of pilot sites

Employer	College	Trade	Theory	# of Apprentices Contracted
Westarcor	West Coast College, Vredenburg Campus	Welding	NC(V)3 & NC(V)4	2
Dormac				22
Busmark Pty Ltd	WestCol, Randfontein Campus	Vehicle Body Building	NATED, N2	24

Source: SSACI DSAP project files

The above table also illustrates the differences between the two project sites. On the West Coast, the West Coast TVET college (Vredenburg campus) was tasked to provide the theory and practical training to 26 welding trade apprentices. The two participating companies were Westarcor (fabrication of specialised heavy engineering machine parts and components) and Dormac (specialising in the repair and refurbishing of ships where work is done in their workshops or on the ship itself). Theory was delivered through the NC(V) programme and from the onset it was decided that apprentices will complete NC(V) 3 and 4 Engineering and Related Design. Successful applicants had to be in possession of a NC(V)2 qualification.

In Krugersdorp (Randfontein) the participating college is WestCol TVET and it was tasked to provide the necessary theory to 24 apprentices who are being trained in the trade vehicle body building. In this case the theory was presented through a NATED programme – N2 for automotive body repair (as there is no programme for vehicle body building specifically). The participating company is Busmark who manufactures and fits bus bodies and is very active in supplying buses to local authorities. Successful applicants had to be in possession of a N1 qualification.

The project execution was closely monitored and regularly reported on by SSACI. Regular steering committee meetings were held and monthly project progress reports were drafted and distributed to the various interested parties. Two external, independent reviews of the project were also concluded, namely a process evaluation and a mid-term evaluation. In order to close

out the project SSACI now requires a summative evaluation to be conducted, limited to the West Coast and Randfontein pilotsites.

1.2 Terms of Reference

SSACI issued terms of reference for the DSAP summative evaluation. In essence, the summative evaluation will have to provide verifiable answers to the following questions:

- Have the implementing partners done what they undertook to do?
- Have they done it well?
- Have the inputs led to the desired outputs/outcomes or are they likely to do so?
- What can be learned from this experience?

The terms of reference seek to understand the efficiency of project execution and the effectiveness of the project. However, these four evaluation questions cannot be responded to in a simplistic manner. Key elements of the initial business plan had to be considered to provide additional clarity on the four questions posed above. The evaluation therefore takes into account the following sub questions:

- An evaluation of the dual system training programme which has been developed for welding and vehicle bodybuilding. Without a sound training programme, it would be difficult to successfully implement the pilot.
- The dual system requires a high level of co-operation and interaction between the training provider (in this case the TVET College) and industry. It was necessary to investigate the extent of such engagement and the level of planning associated with it.
- An examination of the process and criteria used to recruit and select learners, identify appropriate employers and workplaces and the colleges that would provide the formal and practical training.
- An assessment of the extent to which the employer or industry was able to lead and drive the programme (demand driven apprenticeship approach) and whether there was adequate flexibility within the colleges to accommodate employer needs.
- An examination of the steps taken to ensure that learning during this pilot covers the whole of the trade that the apprentice will be tested on, and is of a high quality and that it will lead to competence.

South Africa is in the process of attempting to roll-out the DSA⁵. The pilot projects on the West Coast and in Randfontein were the first of their kind in this country – this summative assessment will record the lessons learnt and should contribute towards directing future efforts in this regard. The summative evaluation also considers the feasibility of the dual system approach being adopted more widely, and to identify actions needed by employers, public TVET colleges, SSACI, SETAs and the DHET in order to address challenges identified within the pilot.

1.3 Methodology

1.3.1 Desktop review

An extensive review of literature pertaining to the Swiss/German Dual Apprenticeship System as well as the current South African approach to the development of artisans was undertaken. Literature quoted in this report is referenced and indexed in the bibliography at the end of the report. Various other relevant documents were reviewed of which the three most important were:

- The Draft National Artisan Development Trade Test Pass Rate and Quality Improvement Strategy
- The report on the analysis of NASDC data
- The tracer study of newly certified artisans

All DSAP project steering committee and other project management meetings minutes that were made available for review were studied together with regular progress reports, reports to the Minister and annual reports. Moreover, five previous evaluations were studied: a process evaluation and mid-term evaluation by M&ESure and three monitoring surveys (employers, learners and college staff). Relevant available data pertaining to learners, logbooks, attendance registers and curricula was analysed. The new occupational qualifications and curricula frameworks were also perused to provide context to the move towards these new qualifications.

1.3.2 Field work

Field work consisted of visits to colleges, training workshops and employer workplaces. Interviews were conducted with a wide range of stakeholders including those directly involved in the project such as management, administrative staff, training staff and supervisors/mentors at the three companies partaking in the pilot. College representatives such as a principal, campus manager

⁵DSA – reference to the dual system apprenticeships as a general concept – can also be interpreted as the A21 Artisan.

DSAP – reference to the dual system apprenticeships project – this specific pilot project.

and lecturing staff were also interviewed. Interviews were also held with current and former learners. A full list of interviewees is reflected at the end of this report.

1.3.3 Reporting

Written communication to the client, SSACI consisted of:

- Inception notes
- A brief progress report midway through this evaluation
- Draft summative evaluation and final evaluation reports
- A PowerPoint presentation summarising the summative assessment report.

1.4 Limitations of the evaluation

The evaluation team faced a number of limitations during the execution of the summative evaluation. These were:

- The business plan for this pilot project did not have a defined theory of change or logframe which could be used as a basis for the evaluation. The evaluation was therefore guided by the content of the business plan and the Terms of Reference.
- The pilot project was small. This evaluation is based on a maximum of 54 learners who were originally registered on the DSAP (30 on the West Coast and 24 on Randfontein). Findings are therefore limited and conclusions tentative in some cases. More research will be needed to confirm some of the findings.
- The Port Elizabeth site was not part of the evaluation although it was initially part of the pilot. Interrogating the challenges which arose in that project and which led to its removal from the pilot project could have enriched this summative evaluation. It is briefly touched on using what was available in documentation, but no interviews were conducted in the Eastern Cape.
- The learners in Randfontein have not yet undergone trade tests. This means that data that is quite critical to a summative evaluation is not available. Reliance has to be placed on formative assessment of apprentices.
- Unavailability of stakeholders. Only 5 of the West Coast DSAP learners could be reached. Every effort was made to contact the learners – a “WhatsApp” group was formed with all the learners and communicated to continuously, each learner was personally phoned at least three times, the College tried to contact them, but with limited success. A meeting was scheduled with the six learners that agreed to attend a focus group session – only one showed up. Three (one was from the DSAP and two from the accelerated

apprenticeship project) were interviewed at Dormac and a further three DSAP learners could be reached for a telephone interview.

1.5 Intended outcomes of the pilot project

Whilst the business plan stipulated various outputs and deliverables, in essence the DSAP pilot aimed to achieve the following;

- a) Through the implementation of the dual apprenticeship system, similarly to how it is being implemented in Germany, train 54 artisans at two pilot project sites.
- b) Capture the experiences and learnings from the implementation and judge on its merit to be implemented on a larger scale in South Africa
- c) If appropriate to the South African environment, make recommendations on how to improve on the implementation of the DSA in South Africa.

2 OVERVIEW OF APPRENTICESHIP SYSTEMS AND EARLIER DSAP REVIEWS

This chapter will summarise relevant desktop research which serves as a backdrop to the summative evaluation of the DSAP. It will consider the Swiss/German Dual System and will also provide an overview of the South African system. Finally, it will briefly refer to other assessments and evaluations already executed on this DSAP.

2.1 Overview of the Swiss/German Dual Apprenticeship System

The dual apprenticeship system combines a formal apprenticeship where an apprentice is employed in a company and a broader vocational education programme at a vocational school or college in one integrated programme which culminates in a trade test as well as a vocational qualification.

As one part of the dual artisan programme, students are working and given on-the-job training in a company for two to three days a week. The company is responsible for ensuring that students get the standard quantity and quality of training embedded in the training descriptions for each trade.

In Germany, this practical training may be complemented by more practical lessons at workshops run by the Guilds and Chamber of Commerce, in order to compensate for the bias caused by training at only one company. These extra courses usually take three or four weeks a year.

The other part of the dual education programme involves classes at a vocational school (*Berufsschule*). The responsibility for this part of the course lies with the school authorities in every German state or Swiss canton. Both general lessons (for example language, politics, economics, religion or even sport) and trade-specific theory are taught.

For most trades, the first examination takes place about half-way through the vocational training and is only to test how well the student is doing thus far: the marks do not count towards the final exam. Final examinations for trained artisans are traditionally known as journeyman's tests (*Gesellenprüfung*).

Vocational training in Germany is derived from a tradition that dates back to the Middle Ages, when young people were already being trained in craft, commercial and technical occupations. From the 18th to the 19th century, despite the increasing pace of industrialization, the overwhelming majority of the German population continued to work in the primary sector

(agriculture) and apprenticeship training was still small. Only selected craft trades were officially regulated with specified training contents⁶.

In 1969 Germany adopted a Vocational Training Act governing apprenticeship training programmes but it was in the 1970s when amendments were made to the Act that the dual system was entrenched, however it was hampered by the lack of an acceptable funding formula. In 1981 the Vocational Training Promotion Act was adopted and whilst it still did not contain funding arrangements, it provided a legal basis for the Federal Institute for Vocational Training (BIBB) which was established in 1969. This institute is responsible for research and development of workplace vocational training. This act was modernised with amendments in 2005.

The principle of duality⁷

The core concept of the dual system of vocational training is training that takes place both at a company and at a vocational school in tandem. The company provides trainees with the practical part of the training, while the vocational school delivers the theoretical part. Specialists from the companies play the greatest part in the trainees' process of "learning on the job". They are heavily involved in the design of training regulations – defining the technical content of the training course at the company and setting examination requirements. This plays a major part in ensuring that these regulations are accepted by the companies.⁸ This is a key element of the dual system. Furthermore, any changes in training regulations will only become a decree on training once the federal government is satisfied that there is an agreement between the social partners and experts.

The principle of primacy of occupation

The training at the company is governed by training regulations that set out uniform, nation-wide standards for training content, the training timetable, and examinations. The nation-wide standards and the nationally recognised qualifications act as a quality benchmark for employers and serve as a basis for recruitment. According to the Act, vocational training must focus on "broad basic vocational knowledge and the knowledge and technical skills required to perform an occupational activity".

It is for this reason that specialists from companies are so important to the success of the system: they ensure that the vocational training regulations are revised in accordance with technical

⁶Temblay and Le Bot, 2003

⁷*Ibid.* The core of the first three principles were extracted from the Temblay and Le Bot research article

⁸ Federal Ministry for Economic Affairs and Energy, n.d

progress, developments in professional practice and economic and social change. This involves modernising current regulations or creating new ones to meet the needs of business.⁹

The adjustment of training content or the creation of a qualification for a new occupation is done in a collaborative manner between employers and trade unions. Once approved by the relevant authorities, experts from employers and trade unions will modernise a qualification or develop a totally new qualification. It is also important to note that whenever a qualification is modernised or created, the curriculum taught at the vocational institution is revised accordingly – this ensures dovetailing between the educational and practical components.

The principle of cooperation

The participation of companies to provide workplace training is paramount – without their participation there will be no dual VET system. In general, young apprentices undertaking their training in small- and medium-sized businesses learn their trade by directly participating in the firm’s production system. On the other hand, those who undergo their apprenticeship in a large firm are trained in the firm’s vocational training centre. In recent years, joint training centres for both small- and medium-sized firms have been created.¹⁰ However, whilst this is the case, training under the dual system does not focus on the specific needs of the training firms but is meant to provide the skills needed to perform a craft or occupation.

The dual system is therefore based on the close cooperation between the school system and firms. Because the equilibrium of the system depends on the supply of training places by firms, they play a prominent role. Beyond social and moral reasons, firms have no obligation to participate in the system and provide apprenticeship places. However, when firms agree to provide training places, they must comply with the various laws and regulations governing vocational training procedures.¹¹

The principle of ownership

The prime responsibility to train artisans lies with companies. In the dual system, the student is an employee of the company from the beginning and receives tasks according to his/her growing abilities. If a company is willing to enter into an employment contract with the student after his dual education time, the company will get an employee who knows the company's workflow. The

⁹Ibid

¹⁰Temblay and Le Bot, *op.cit*

¹¹Ibid

student can also benefit from the knowledge about hard skills and soft skills of more experienced co-workers.

Even though it is today possible to study full-time at a vocational training school, they will have to wait for apprenticeship places in the dual system to become available. However once placed, the student becomes an employee of the company, at least for the period of the apprenticeship to be concluded. The company takes ownership of the development of the apprentice(s). It is important to note that in Germany employers fund the training. There is no government funded, or levy-linked, incentive that employers access. Employers train because they need the artisans and believe that the best artisans are those that they train themselves.

The principle of articulation

Many countries have tried to emulate the dual apprenticeship systems of Austria, Germany, and Switzerland that alternate on the job training with school based education. Such attempts have sometimes failed because of insufficient attention to the institutional context including the range of further routes of progression.¹² Whilst it remains a challenge in Germany there is scope to progress from the dual VET system to academic higher education. In Switzerland Universities of Applied Science (*Fachhochschulen*) are open to those who have successfully completed the dual apprenticeship and passed the special vocational matriculation examination. In Austria, a similar arrangement is in place. However, in all three countries there remain articulation challenges. It is important though that all agree to and work towards integrated articulation to institutions of higher learning.

Conclusion

Numerous reports list the German dual VET system as the largest contributor to Germany's youth unemployment being the lowest in Europe¹³. This is so because it is a preferred route to eventually gain employment – as much as 60% of Germany's youth enter the dual VET system¹⁴¹⁵.

In 2013 total unemployment in Germany was 5.3% and youth unemployment 7.9% resulting in a gap of 2.6%. Only one country in Europe had a lower total unemployment rate, Austria with 4.3% but their youth unemployment rate was 8.7% resulting in a much wider gap of 4.4% when compared to Germany. This then also explains why the majority of Germany's workforce received

¹²OECD, n.d.

¹³Schneider, Hilmar, May 2012

¹⁴Westervelt, Eric, April 2012 and numerous others

¹⁵Carroll, Caitlan, July 2013

its highest qualification through the dual VET-system in 2012 (54% whilst university graduates represents 18%, graduates from vocational colleges and technicians 10% and unskilled labour 18%)¹⁶.

2.2 Overview of the South African Apprenticeship System

The apprenticeship system in South Africa was historically governed by the Manpower Training Act of 1981. At its peak in 1985 the system annually produced 13 500 apprentices passing their trade tests to be certified as artisans. Since then however the numbers dwindled dramatically with 7 000 passing their trade tests in 1990 and by 1996 a low point of 3 000 was reached.¹⁷

The post-apartheid system resulted in various new routes to obtain a technical qualification and to arrive at a trade test. Various forms of learnerships, skills programmes and RPL were instituted – this all led to a general move away from apprenticeships as the accepted route to a trade. This was amplified by new sectoral approaches to funding, qualifications and certification which all contributed to stagnation in artisan development. On top of this the economy started to contract, and some public entities, such as Iscor, were privatised, while others were “corporatised” with the resultant focus on “core business” and reduced focus on skills development. Public entities or State Owned Entities (SOEs) ceased to play their traditional role of training not only the artisans they needed, but also helping meet the demand for skills in the economy. All this led to a reduction in the enrolment of apprentices. At the same time, existing artisans became older and started to exit the labour market, creating a real shortage of artisans in South Africa.

“Smaller employers don’t understand how the pathways work. Bob in Boksburg doesn’t know where to start.”

Janet Lopes, CEIFSA

On the supply side, the former Further Education and Training (FET) Colleges (now TVET colleges) have lost most of their trade qualified trainers, have tended to focus mainly on delivering national qualifications such as the National Certificate Vocational (NCV) and Nated – both predominantly theoretical in nature - and have largely become disconnected from the artisan training system. On the one hand, TVET students cannot access workplaces, while on the other hand employers complain that the colleges deliver underqualified aspirants.¹⁸ In recent years, companies that do train artisans have tended to do their own in-house theoretical and practical training or partner

¹⁶ Germany Trade and Investment, February 2014

¹⁷Van Rensburg, Dewald, November 2012

¹⁸Ibid

a private provider to do this. These approaches enable employers the flexibility they need and gives them a level of confidence that their needs will be addressed.

According to Janet Lopes¹⁹: “There is this idea that FET colleges provide an automatic route to artisanship. That’s simply not true, you still need to do the workplace component. People do get three years of theoretical training at an FET college, but they then have no prospect of being certified as artisans.”

The National Skills Accord of 2011 attempted to turn this around. It agreed to a target of 30 000 apprenticeships per annum. Of these 56% will be hosted by the private sector and 44% by government and public entities.

In support of this initiative a Green Paper on Post-School Education and Training was released in January 2012 and amongst others, suggested two far reaching regulated changes. Firstly, to reduce the number of trades from approximately 1000 to a proposed 100 “generic trades” – this will reduce the myriad of separate curricula. The second was to centralise all artisan matters under the National Artisan Moderating Body (NAMB), launched in 2010 along with the Quality Council for Trades and Occupations (QCTO).

Traditionally, in South Africa there were two routes to become an artisan. Until 2012 there was the “Section 13 apprenticeship” whereby an apprentice is indentured for 2 to 4 years with the same employer with block releases to attend a relevant FET College. The second was the “Section 28 candidate”. This candidate had multiple years of experience but did not follow the formal apprenticeship programme. In this case evidence of prior learning was compiled and vetted where after the candidate was allowed entry to the trade test.

2.2.1 Key challenges of the current system

In its report to National Treasury, Mzabalazo Advisory Services (MAS)²⁰ identified 5 key challenges within the current apprenticeship system:

- **System of Administration.** The current system is plagued with inefficiencies throughout the different stages of artisan training that reduce the effectiveness of the programmes. This includes poor SETA research, limited career guidance, complicated and inefficient learner agreement management by SETAs, slow grant disbursement processes, poor and late learner monitoring as some of the key issues. Also listed are costly and inconsistent

¹⁹Janet Lopes, Skills Development Executive for the Steel and Engineering Industries Federation of South Africa

²⁰Mzabalazo, June 2014

quality assurance, lack of employer confidence in artisan programmes, delays in trade tests and lack of impact assessment.

- **Poor TVET system engagement with artisan development.** Some of the challenges experienced are limited access, low throughput rates, poor management capacity, poor governance, limited partnerships with employers and other stakeholders, NCV curricular that is misaligned to the outcomes of trades and to local economic needs, poor quality workshops, uneven levels of trade expertise amongst teachers, and inadequate work experience and employment opportunities for students.
- **Limited employer initiatives.** The introduction of a nationally determined grant in 2013 appears to be having the effect of increasing participation across all economic sectors. However, some of the above problems, particularly inefficient SETA administration, impact negatively on participation, and so the full benefits of the grant are not being realised. This is particularly true in relation to smaller companies.
- **Structural weaknesses in artisan learning programmes.** The existing system for artisan development consists of multiple routes, a large number of which are complex²¹ and do not allow for the optimal integration of theoretical, practical and workplace knowledge and experience. Many learners lose their theoretical foundation as they do not have the opportunity to apply what they have learned early on and throughout the learning programme. It causes a chain reaction imposing directly on the quality of skills transfer from newly qualified artisans serving as mentors to apprentices, applied competence i.e. skills and knowledge suffers as consequence. The system created in some learning pathways has been one in which learning is compartmentalized. This has impacted on poor outcomes with respect to the number of qualifying artisans. It has also lengthened the time it takes for a person to learn a trade.
- **Throughput rates.** The low throughput rate of 56% remains the biggest obstacle facing the artisan development system. There are currently between 26,000 and 27 000 artisan learners entering the system each year and only around 14-15 000 qualifying.

²¹Lopes puts it as follows: “Smaller employers don’t understand how the pathways work. Bob in Boksburg doesn’t know where to start. The key thing is the trade test. Anything that doesn’t align with it is simply not a route to becoming an artisan.”

Addressing all the above challenges can be expected to result in an improved throughput rate and should reduce inefficiencies and costs within the system - resulting in an improved rate of return on funds allocated. This study found that there are currently four routes to becoming an artisan:

- **Formal apprenticeship or learnership.** By far the most common route is where learners with technical Matric and/or a NATED qualification are contracted by an employer onto an apprenticeship or a learnership. These are both essentially a 3-year route comprising of three components of acquisition: theory, practical and workplace experience, although not necessary integrated.
- **Accelerated artisan programme.** This is based on the merSETA model and was developed for learners that had completed an N3 (with four subjects of 50% or more including Mathematics and Science) but could not find apprenticeships with employers. The learner may enter the workplace directly and is required to do 80 weeks of workplace training (26 weeks of which may consist of practical training in a simulated workshop environment) to be able to write the trade test.
- **Integrated occupational qualification.** These new qualifications are recommended and to be offered by public TVET colleges. The strength of the qualification lies in the fact that it integrates theory, practical and workplace training. However, the development of the new occupationally directed qualifications is lagging behind.
- **RPL.** The Recognition of Prior Learning (RPL) route is applicable to employees (and unemployed) that have been in employment in the artisanal field for at least four years and have gained practical experience by working with qualified artisans (or a competent person which is not necessarily an artisan). They may have little formal academic training. After a period of four years they can do a Trade Test via the RPL route.

Table 2²² summarises the advantages and disadvantages of each route. It also clearly illustrates that none of them, with the exception of the “Integrated Occupational Qualification” is mirroring the dual system apprenticeship program.

Table 2: Advantages and disadvantages of the four routes to becoming an artisan

²²Mzabalazo, *op. cit.*

Route & description	Advantages to the learner, employer & the government	Disadvantages to the learner, employer & the government
Formal apprenticeship or learnership	<ul style="list-style-type: none"> ▪ Integration of theory and practice ▪ Good success rates ▪ High percentage employed after passing trade test ▪ Monitoring and tracking is straightforward 	<ul style="list-style-type: none"> ▪ 3-year commitment – not easy for employers in current economic environment ▪ Employers worry that labour laws create expectation of employment
Accelerated artisan programme	<ul style="list-style-type: none"> ▪ 80 – 100-week commitment is easier and more cost effective for employers ▪ High success and absorption rates. 	<ul style="list-style-type: none"> ▪ Concerns over entry requirements being too severe (matric or N3) ▪ Cost of Matric and N courses need to be added – this is not a “cheap” option.
Integrated occupational qualification ²³ : Learners complete a 3-year programme that integrates theory, practical and workplace components.	<ul style="list-style-type: none"> ▪ Similar advantages to learnership and apprenticeship route ▪ Avoids learners going from Matric, to NCV, to Nated etc. before entering an artisan programme. Potentially the most cost-effective route 	<ul style="list-style-type: none"> ▪ Employers concerned about quality of TVET college provision ▪ TVET provision is still geared more toward the NCV than the trade qualification – time tables not suiting employers
RPL: existing employees and those entering employment as unskilled and semi-skilled workers are assessed and provided with top up training until they pass the trade test.	<ul style="list-style-type: none"> ▪ Allows for flexibility – anyone can access RPL wherever they are employed ▪ Important to allow employed people to acquire a trade 	<ul style="list-style-type: none"> ▪ This route is long – it can take many years to obtain a trade outside a structured programme ▪ It is difficult to devise a funding model to suit all the different RPL candidates

Source: Mzabalazo EPR

²³Note: At the time of the MAS study the focus was specifically on the delivery of the integrated programme via public TVET colleges. It needs to be noted that occupational qualifications do not have to be delivered via the public colleges. Theory can be presented by any duly accredited provider, public and private and includes accredited in-house company training centres.

2.2.2 Draft National Artisan Development Trade Test Pass Rate and Quality Improvement Strategy 2015²⁴

In areas of work such as the artisan trades, apprenticeships have traditionally been the pathway to qualifications; however, the apprenticeship system has been allowed to deteriorate since the mid 1980's, resulting in a shortage of mid-level skills in the engineering and construction fields. Re-establishing a good artisan training system is an urgent priority; the current target is for the country to produce 30 000 artisans a year by 2030.²⁵ This draft regulation aims to address the weaknesses in the system.

In an attempt to overcome some of the challenges, DHET has introduced the “Seven Step Model” to becoming an artisan. This will guide the process of artisan development nationally. For overview purposes, this discussion will focus mainly on one of the key recommendations of this draft Regulation, the 7-Step Model.²⁶



It should be noted that the 7 steps have informed recent apprenticeship training, even though it was not regulated. The 7-step model has been implemented, tested, reviewed and adjusted in the draft regulations published in 2015. The Regulation proposes certain adjustments to the 7 Step Model. These are:

- Swapping steps 2 and 3 (placing “Learner Agreement Registration and Contracting” before “General/Vocational/Fundamental knowledge learning”).
- Integrating steps 4 and 5 (Occupational Knowledge Learning and Workplace Learning)

Clearly these two adjustments will work strongly in favour of, and contribute to entrenching, the DSA. Switching steps 2 and 3 will mitigate the challenges that an apprentice faces in accessing their required workplace learning. According to the draft regulations it will also make the funding of apprentices easier and more meaningful as they would all have a workplace component. The

²⁴Government Gazette, 11 August 2015

²⁵White Paper for Post-School Education and Training, 20 November 2013

²⁶Chapter 2 of this Summative Assessment will consider those elements of the Regulations pertaining to the dual system in more detail.

Expenditure Performance Review (EPR) conducted by MASON behalf of National Treasury concluded that the average cost of training an artisan is R400 000.²⁷ The cost element comprises the theoretical, practical and workplace experience and training. The changes with steps 3 and 2 would allow for the combination of TVET College funding norms and the Learner Grant Funding to contribute to covering the cost of developing and artisan. This would ensure that apprentices are funded for their full learning component (knowledge, practical and workplace). This also places an obligation on the DHET and SETAs to ensure that more employers open up their workplaces in order to accommodate apprentices.

The draft regulations further states that “The integration of steps 4 and 5 as per the new 7 Steps means that apprentices will spend time in the College doing their knowledge and practical component. They would then go to the workplace to apply the knowledge and practical learnings to real life production environments”.

The new A21 (Artisan of the 21st century) occupational qualifications require that learners complete their knowledge, practical and workplace component as part of a dual system approach. (The occupational qualifications being developed have a dual system approach to the training of apprentices as an integral part). The sequencing of the apprenticeship components will be determined in the National Trade Curriculum Statement (NTCS) development processes by the curriculum development occupational teams. The draft regulations are clearly a proposed vehicle for expanding the dual system in South Africa.

2.3 Overview of Historical Project Evaluations

During the life cycle of the DSAP, three interventions recorded progress and experiences of the various parties. As a preamble to the summative evaluation, the relevant and important findings of the three interventions are summarised briefly.

2.3.1 Process Evaluation (conducted by M&ESure)²⁸

The key challenges identified by this study were:

- Selection of employers and colleges cannot be done effectively without taking cognisance of broader challenges impacting on perceptions related to workplace training and the ability of colleges and companies to successfully participate in the implementation of the

²⁷Mzabalazo, *op. cit.*

²⁸M&ESure, November 2014

DSAP – own capacity of implementing partners will determine the extent to which implementation of the DSAP will take place.

- The legislative environment is prescriptive regarding the nature of contracts, stipends and what qualifies as a trade and what not.
- Apprentices found the workload quite heavy and were concerned if they would cope with the workload and additional classes. Also, their lack of basic technical competence has resulted in preventing them from gaining actual, authentic workplace experience.
- Communication, given the range of role players, is of critical importance and monthly site-meetings do not suffice.
- Integration of the NCV curriculum with the workplace training had been particularly challenging.

The positive aspects identified in this evaluation were:

- The DSAP created space where lecturers and employers are able to meet and discuss issues related to training and industry standards
- Employers see the value in forging closer relationships with colleges in order to begin to bridge the divides that exist between college training and workplace training.
- Through the DSAP lecturers have been exposed to industry and industry standards which assisted them in their lecturing task and setting assignments.
- Through the DSAP the apprentices have obtained exposure to the type of workplace they hope to enter. They have also learnt about workplace related matters such as safety, tools and equipment used in industry.

2.3.2 Mid-term Evaluation (conducted by M&ESure)²⁹

The challenges identified in this study were similar to those listed in the Process Evaluation Report with the addition of:

- A breakdown in communication between two key stakeholders in the project.³⁰

²⁹M&ESure, November 2015

³⁰This is a finding of M&ESURE which led to a number of consequent problems that will be further discussed in section 3.3.3 of this report.

- The fact that apprentices were working without insurance which resulted in the college having to take out insurance cover, adding to the expenses the college had to carry³¹.
- Poor mathematics performance of apprentices resulting in additional support initiatives with the resultant risk of adding further pressure to the already tight schedule apprentices have at the college.
- Limited capacity of the SETAs to provide the necessary guidance and input on trade related issues.

Positive factors identified were similar to that alluded to in the Process Evaluation Report.

2.3.3 SSACI Survey of Employers, Apprentices and Colleges³²

SSACI conducted its own monitoring survey of participating employers, apprentices and colleges. The surveys were conducted on employers, learners and college stakeholders participating in the pilot project. The following tables summarise the results of the three surveys.

³¹This is a finding of M&ESURE and may not be correct. There are cases where the College is the employer and a host employer is identified whereafter an MoU is signed between the College and the host employer. In the event that any student placed with a host employer sustains a workplace injury, then for such a student who is employed by West Coast College, all compensation requirements, administration and claims will be carried out by (West Coast) College. The host employer will maintain public liability insurance to the amount, and on terms satisfactory to West Coast College against any loss, damage or injury to any third party caused by any student that it hosts, and which arises out of or in the course of its hosting of the student

³²SSACI, 2015

Table 3: Employer representatives feedback

Questions	Combined response categories	%
How satisfied/pleased/happy are you with the DSAP so far?	Extremely satisfied + very satisfied + satisfied	100%
Would you recommend this programme to other companies?	Yes, definitely + yes, probably	75%
What is your view of the quality of the following aspects of the DSAP?		
• Info received on DSAP prior to its start	Excellent + very good + good	100%
• SSACI project management and support		88%
• SETA project management and support		88%
• Selection process of the learners		100%
• Relevance of College training to what learners require at the workplace		75%
• Weekly rotation arrangement		88%
• Interaction with/ support by the College		100%
What were the most significant outcomes for you?		
• No impact at all	N/A – Percentage of respondents agreeing with the statement	0%
• Companies gaining access to good students early in the process		38%
• College and industry interacting on a regular basis		88%
• Curriculum and training enhanced through interaction		100%
• Learners can see what their occupation is all about		88%
• Learners are learning about the world of work, punctuality, work ethics, etc.		100%
• Learners starting to take ownership of themselves and their development		100%
• Learners are more motivated to continue studies		50%
• Learners develop their competence levels faster		50%
• Learners have better practical understanding		100%

N = 8

Table 4: College representatives feedback

Questions	Combined response categories	%
How satisfied/pleased/happy are you with the DSAP so far?	Extremely satisfied + very satisfied + satisfied	100%
Would you recommend this programme to other colleges?	Yes, definitely + yes, probably	100%
What is your view of the quality of the following aspects of the DSAP?		
• Info received on DSAP prior to its start	Excellent + very good + good	100%
• SSACI project management and support		100%
• SETA project management and support		100%
• Selection process of the learners		100%
• Relevance of College training to what learners require at the workplace		71%
• Weekly rotation arrangement		71%
• Interaction with/ support by the employers		100%
What were the most significant outcomes for you?		
• No impact at all	N/A – Percentage of respondents agreeing with the statement	0%
• Companies gaining access to good students early in the process		71%
• College and industry interacting on a regular basis		100%
• Curriculum and training enhanced through interaction		100%
• Learners can see what their occupation is all about		100%
• Learners are learning about the world of work, punctuality, work ethics, etc.		100%
• Learners starting to take ownership of themselves and their development		100%
• Learners are more motivated to continue studies		86%
• Learners develop their competence levels faster		71%
• Learners have better practical understanding		100%

N = 7

Table 5: Learners feedback

Questions	Combined response categories	%
How satisfied/pleased/happy are you with the DSAP so far?	Extremely satisfied + very satisfied + satisfied	84%
Would you recommend this programme to your close friends and family?	Yes, definitely + yes, probably	97%
What do you think of the quality of:		
• Info received on DSAP prior to its start?	Excellent + very good + good	82%
• How well were you recruited and selected by employers?		100%
• Induction (how well)?		82%
• Relevance of training at the college to the workplace?		84%
• Quality of college teachers/instructors?		89%
• Learning opportunities exposed to at workplace?		100%
• Mentoring and guidance received from employer?		95%
What were the most significant outcomes for you?		
• No impact at all	N/A – Percentage of respondents agreeing with the statement	0%
• Learning about world of work (punctuality, work ethics, etc.)		84%
• I can see what my occupation is about		73%
• Entered as learnership/apprenticeship and have work now		41%
• Enhanced self-confidence		59%
• Take ownership of myself and my development		62%
• More motivated to continue with studies		92%

N = 37 (to most questions)

For the DSA to be implemented successfully in South Africa, employers, colleges and apprentices alike will have to be positive towards and accept the system. All three these evaluations overwhelmingly indicate that those who did participate are all very positive. During interviews with employers’ representatives, college staff and learners, this finding was confirmed – all were very positive towards the DSA. Going forward, these findings should create confidence in those responsible for rolling out DSA across the country and provides a useful basis to interact with other employers and colleges at a large scale (marketing the system).

3 SUMMATIVE EVALUATION

3.1 Introduction

The revised business plan for the DSAP project forms the basis of this summative assessment. This evaluation will attempt to understand the role and responsibilities of each of the project stakeholders and assess whether there were executed efficiently or not. The evaluation also unpacks each of the outcomes specified in the business plan. At the core of this evaluation is the dual system definition which was adopted by the Steering Committee, which states:

“The dual system requires apprentices to spend most of their time working in host companies, where they get on-the-job practical training and the remainder in dedicated training institutions where they get a mix of trade-theory and sheltered practice. Typically, they may work for three to four days a week in the company and spend the remaining one or two days at a college. Along with this splitting of each working week between college and company is the assignment of a leading role to the employers, who are primarily responsible for defining the training curriculum and methodology, the trainees’ work assignments and organisation, some aspects of assessment, and the overall management of the programme.”

So in addressing the detail of what each stakeholder committed to doing, the evaluation retains the overarching approach of checking whether the intentions of the pilot have been achieved. In particular, it focuses on those aspects of implementation that have impacted or are impacting on the outcomes and which will need to be addressed if a wider roll out of the model is to be successfully achieved. It is important to note that although there is overwhelming support from stakeholders and agreement that the integrated approach to artisan training is the correct one, the challenges that have been identified in the previous evaluations and in the current one are very great. They are both complex and complicated and will not be resolved quickly or without correcting errors that were made in the pilot.

In the process of unpacking the work done by, and involvement of, each stakeholder, this section will address the first three key questions posed in the Terms of Reference, namely;

- Have the implementing partners done what they undertook to do?
- Have they done it well?
- Have the inputs led to the desired outputs/outcomes or are they likely to do so?

3.2 Port Elizabeth

The dual system apprenticeships were piloted in three different geographical areas – Port Elizabeth in the Eastern Cape, West Coast in the Western Cape province and Randfontein in Gauteng. In practice the pilot only took off on the West Coast and Randfontein and it was these sites that were evaluated. However, some information is also provided on the PE project and why it did not continue as part of the pilot.

The Port Elizabeth project commenced late in 2013 with a targeted 20 apprentices in the mechatronics trade. Eventually 16 apprentices participated. At the time of commencement, no trade test for mechatronics was in place. Participating companies were Continental, Johnson Controls and Volkswagen. Key challenges included:

- Integration of the curriculum NC(V) and Learnership unit standards was considered problematic as was the integration between the practical standard accepted by the college and those accepted by the workplace – this lack of integration between the college and the workplace resulted in a project that was not really a “dual-system” apprenticeship model.
- As mechatronics did not have a trade test, apprentices had to operate under a learnership agreement. This remained the status until the project was eventually discontinued as the merSETA could not fulfil its obligation to ensure that a trade test is available.
- The disagreements between the TVET college and employers about the quality of theoretical and practical learning components and the readiness of apprentices resulted in lack of motivation to make the DSAP work. VW insisted that the apprentices return to study NC(V) full time at the college and only later become employed in the workplace (under a learnership arrangement). This would have negated the possibility of integrating theory and practice and so could not be accepted as a dual system pilot.

At a steering committee meeting of 24 March 2015 a decision was taken to discontinue the Port Elizabeth project as a DSAP.

3.3 West Coast

The West Coast Project commenced July 2013 with the West Coast TVET College being the selected training provider. Originally 30 learners were selected to be part of the pilot project – 6 were to be apprentices at Westarcor and 24 at Dormac. However at the time of signing

“When it comes to NC(V) and integrating it with an apprenticeship – there is little wrong with the ingredients but the mix must change to make it more flexible”

College Engineering HOD

contracts only 4 apprentices were engaged by Westarcor and 22 by Dormac. All learners were enrolled in the Welding Trade apprenticeship.

All apprentices had already concluded level 2 of the National Certificate Vocational referred to as NC(V)2 at the start of their apprenticeships and were earmarked to complete NC(V)4 during their apprenticeship. Westarcor is a fabrication company manufacturing specialised heavy engineering machine parts and components whilst Dormac is specialising in the repair and refurbishing of ships where work is done in their workshops or on the ship itself.

3.3.1 Selection of Apprentices

The college identified 90 potential learners from those who have completed NC(V)2 and interviewed them as well as explaining the welding trade and how the training process will be implemented. From this group 50 were shortlisted and were handed over to the two employers for the final selection of the 30 learners to be enrolled in the apprenticeship.

Whilst no standardised interview checklist was used and each employer applied their own approach to the interviews, it was confirmed that all parties were satisfied that the interviews were necessary to select the most appropriate candidates and were satisfied with the process and outcome. However, some of the concerns expressed by supervisors and managers about the attitude of the learners pointed to a selection process that was not tight enough. Concerns raised included that some of the learners were considered to be “only in it for the money”, which is understandable given the level of unemployment and the possibility of a R1200 a week stipend.

3.3.2 Employment relationship

The German dual system requires of the apprentice to be contracted by an employer. Technically the same applies in the South African DSAP. However, the experience on the factory floor is not necessarily the same.

In the case of the West Coast apprentices, although employed by Westarcor and Dormac both the apprentices and the employers were of the opinion that they were “learners” and should be treated as such. This resulted in a distance that developed between the apprentices and the employers. This was clearly illustrated by one foreman stating that some of the apprentices had no discipline, did not execute tasks assigned to them and left the premises whenever they wanted to - but no action was taken against them. Also if problems were experienced with apprentices it was reported to the College and College staff would then address the problems with the apprentices. This is clearly contrary to the employer/employee relationship where discipline is a matter for the employer.

The contact between the college and employers was limited. Apart from regular steering committee meetings direct planning and problem solving meetings between the College and the employers were *ad hoc* and happened only when an issue appeared.

There also appears to have been a very limited induction process, whereby the supervisors and mentors were not advised that they had employer responsibilities but rather were left to understand that they were “hosting” learners.

The above then also led to one of the main weaknesses of the West Coast pilot: the absence of the employer guiding and spearheading the total process. As a result there was not sufficient integration between learning process and workplace exposure – these appear to have been treated as two separate elements.

Another weakness with the West Coast implementation was that there was no clear coordinator and/or driver to smooth out the transition from the class to the workshop and from the workshop to the workplace.

So although it was intended that apprenticeships should be employees, in practice they were not viewed as such.

3.3.3 Contracting of Apprentices

Apprentices were contracted using the standard merSETA Dual System contract for Dormac. In the case of the Westarcor, the merSETA signed a normal discretionary fund MoU. This came about because the employer refused to accept the bargaining council agreed rate for apprentices. This created a situation of the apprentices being contracted differently and being on different stipend rates. This resulted in some unhappiness within the apprenticeship cohort. It is one of the key tasks of a SETA and DHET to ensure that clear, standardised and unambiguous apprenticeship contracts are in place prior to commencing with the apprenticeship programme. However, merSETA noted that the administration of apprentice stipend is by employers. Furthermore, for the duration of the apprenticeship, the apprentice is paid a wage by the employer determined by the industry bargaining council. Where an employer is not a member of a bargaining council such prescription does not apply. Whilst the compromise put in place by the SETA and accepted by the project team may have been viewed as reasonable, in retrospect it was not ideal to have some of the cohort identified and paid as “learners” and others as “apprentices”.

3.3.4 Theory: National Certificate (Vocational)

Traditionally the West Coast College approached employers to enrol learners on apprenticeships who have already completed NC(V)2. Clearly this is dissimilar to the standard DSAP approach in that the theory and workplace exposure is treated separately from workplace exposure following the theory whilst the DSA requires rapid integration of theory and practice. During full-time NC(V) studies students are routinely exposed to simulated practice in the college workshops but this is not always perceived by learners or employers as being adequate to prepare them for the workplace. Moreover, colleges appear to be stronger in some aspects of practical training than others.

From the first year of the apprenticeship, it was attempted to integrate the learning with workplace exposure on a rotational basis as suggested by the DSAP. Naturally, during college vacations, apprentices also spent time at the workplace. Due to the integrated nature of the DSAP, learners spent 7 to 10 days in the workplace and the same period of time at the College on a rotational basis. It is important to note that the apprentices shared a classroom with NC(V) learners who were not part of the pilot. This then implied that upon returning to the College, learners had to do “catch-up” of work lost during the period at the workplace whilst at the same time continue with the studies for the 10-day period at the college. To manage this, the College had to make special arrangements by placing the apprentices in a separate class and allocating lecturers to engage in additional evening classes. Both apprentices and lecturing staff experienced this arrangement as taxing and stressful – which is not conducive to learning.

Of the 23 remaining apprentices (Dormac 21 and Westarcor 2) only 10 passed mathematics as one of the subjects of NC(V)3. The main reason for this is that for two months of the year there was no mathematics lecturer at the college and it was not reported at steering committee meetings nor project management meetings with the college. To rescue the situation, a lecturer was contracted by SSACI to provide extra mathematics classes which resulted in a further 9 apprentices passing the subject.

The requirement for apprentices to focus on the theory and continually having to do “catch-up” meant that practical work in the college workshop had to be limited to only 12 hours per 10-day cycle which is substantially less than for learners who are full-time enrolled in the NC(V) programme. This is very important as both Randfontein and West Coast employers stressed the value of simulated practical work as it assists in correcting skill deficiencies and reduces time wasted at the workplace to attend to basic and hand skills.

Both the Randfontein college staff and the employer were adamant that the NC(V) programme cannot be merged with the DSA. It was believed that the NC(V) engineering was not appropriate

for body building. However, Dormac and Westarcor were less critical of the programme run in the college and the apprentices seemed satisfied that the theory of the NCV was important.

So the problem of the theory was two-fold. The first was that the NC(V) itself was not considered to be an appropriate route to the trade theory in respect of body building. The second was the organisation of the programme at the college. The West Coast College did not restructure the programme to enable the work placements, but rather ran a class which included general NC(V) learners as well as apprentices.

3.3.5 Workplace exposure

Workplace exposure at both Dormac and Westarcor was not well integrated with the NC(V) programme, nor was it integrated with the requirements of the trade test. The problems identified in this aspect can be categorised as follows:

- **Lack of process of aligning theory to practice in the programme.**

One of the challenges was that the college curriculum was based on a structured approach to building the necessary theoretical understanding and practice, whereas in the workplaces the work was determined by the order book. So, the timing of what was done in the work place was not aligned to the timing in the curriculum. It would appear that West Coast College continued with the normal NC(V) programme, with little attention paid to the work being done in the factories.

Alignment is not easy to achieve. For example, the two companies in Saldanha were very different in what they do in their respective workshops. The result was that there was very little direct integration between the theory and workplace practice. Students stressed that this misalignment made it very difficult as they will be expected to perform tasks in the workplace which they have not been exposed to either in theory or simulated practice.

- **Employers who did not do all the work within the welding trade.**

Another problem was that some employers did not do all work that is covered in the curriculum and so could not integrate theory and practice (for example Dormac do not do aluminium welding and never intended to).

3.3.6 Quality and quantity of mentors

Dormac did not have an adequate number of trained artisans to supervise the number of apprentices allocated. In the Dormac Saldanha factory there was one supervisor to

11 apprentices. The NAMB policy³³ prescribes a mentor/learner ratio of 1:4. In the Cape Town factory, where these 11 apprentices were transferred when the Saldanha factory ran out of work, there were also very few artisans. Most of the welders employed there were “coded” welders and therefore only were able to mentor for specific types of welding. In addition, no mentor training was done and the supervisors had a very limited understanding of their role as mentors.

On occasions apprentices were left to work alone without any mentor as from time to time the work pressure was too high and artisans could not attend to apprentices. On some occasions, there was no work at all and the apprentices were limited to simulated work in the workshop. The Dormac supervisor in Cape Town said that he deliberately stockpiled steel off cuts so that during quiet times there was always welding that the apprentices could work on. Dormac also consider the best people to relate to an apprenticeship to be the “coded” welders, those who have been tested by industry for specific types of welding, but who may not be fully qualified artisans.

The other challenge related to on the job learning is the quality of the feedback on work carried out. In general, the apprentices felt they were getting good feedback but there were concerns expressed. In Westarcor the person overseeing the apprentices was a trainer, who had previously run a training company. In Dormac the supervisors did not have any train-the-trainer or mentorship training. One was considering attending an assessor course but was sceptical as to whether it would be beneficial. The Dormac supervisor had no knowledge of the theory being taught and so could not have given any thought to the integration of theory and practice. His role was to instruct on welding and to get the apprentices to the level of competence needed by the company. For Dormac and Westarcor the prize was not so much the trade test, but the coded welding test required by customers for their specific welding needs.

3.3.7 Production challenges for employers

The companies engaged in the programme (especially Westarcor) have large fabrication projects and the regular withdrawal of apprentices to attend theory classes at the college interrupted their exposure and when they return after 10 days, the fabrication project has progressed to such a stage that any notion of continuity is lost. This was felt to be one of the challenges of the speedy changeovers from workplace to college. However, it needs to be noted that production cycles vary so much between employers that it would be difficult to avoid some disruption. Unless a

³³NAMB, 7 June 2013

programme is designed for a particular employer (which would be possible only for large employers) then no standard time periods for workplace and college will satisfy all employers.

3.3.8 Approval of workplaces and monitoring of employer commitments

It would seem that the merSETA approved Dormac as a site for the welding apprenticeship, even though it did not in a number of respects meet basic criteria. It is acknowledged that the issue of workplace approval was not a clearly defined process in 2012/13. It is also unclear whether the companies concerned advised the SETA of these gaps, or whether they committed to addressing all aspects of the trade but failed to do so. It could be argued that the company was responsible for formative assessment against the trade test requirements but failed to engage with the full curriculum and so did not take the required action. The important point though is that the merSETA should have identified this as a problem earlier, rather than it being discovered at the time of the trade test, when it was difficult to rectify. As a minimum one would expect the approved workplace or employer to expose the apprentice to all relevant work within a trade and be mentored by a qualified person. These two basic requirements were not met.

3.3.9 Work experience versus simulated work

In some companies the turnaround time for work packages is days, in others weeks and in some months. Companies advised that they could not work to college curriculums unless they separated out the apprentices into a special training area and remove them from paid contract work. Both Westarcor and Dormac have areas in their factories designated as training areas, where apprentices can be exposed to welding work that is similar to contract work, using machines and materials that are either identical or slightly older than those used in production for clients. However, it is not actual work being done under normal conditions and so may be compared to other simulated work, rather than genuine client-related work. It could be argued that this is practical training rather than work experience, and it may be sensible to examine what is happening in workplaces with that in mind. Certainly, it is a reasonable and sensible way of managing fluctuating orders, but whether it is adequate to sign off log books is a question that needs further interrogation. When do simulated work or training end and work experience begin?

3.3.10 Impact of workplace experience

One of the former apprentices stated that the reason why she failed the trade test the first time was that she could not do pipe welding. During interviews, it was confirmed that one of the companies did pipe welding whilst the other rarely engaged therein and as a result their apprentices were not exposed to pipe welding. This then had to be rectified at the college

workshop prior to attempting the trade test again. Another apprentice pointed out that he had not had exposure to aluminium welding and was fortunate that for the trade test he was not required to do this. He passed his trade test but another apprentice who worked with him and took the trade test at another time did get tested in aluminium welding and failed the test. The consequences were therefore very serious.

Employers are of the opinion that these limitations can be overcome if smaller groups of apprentices are allocated to a workshop and they are able to rotate the apprentices between participating employers. For example, Dormac contracts out aluminium welding to a company called Allweld. It would be relatively straightforward for Dormac to agree to relocate an apprentice to Allweld for a month to practice aluminium welding. Whilst this is ideal it will have an impact on contracts, planning, scheduling, funding and logistical arrangements.

3.4 Randfontein

The Randfontein Project commenced April 2015 with WestCol, Randfontein Campus, the selected training provider. Twenty-four learners from WestCol were recruited by the employer Busmark with the proviso that they should all possess N1.

Busmark is a company manufacturing and fitting the bodies for passenger busses which are used all over South Africa with one of its main clients being municipalities, with some even being exported to other SADC countries.

3.4.1 Selection of Apprentices

The College identified approximately 90 deserving learners who were in possession of N1. In a group discussion, the learners were informed about the DSAP, how it will work and what the trade is all about. These learners were then reduced to approximately 50 and the employer (Busmark) was given a free hand to interview and shortlist 25 potential apprentices. These 25 learners were then over a period of a month inducted at the premises of Busmark and exposed to the various production sections of the factory. They also completed an aptitude test. Finally, 24 learners were selected and enrolled on an apprenticeship in the trade Vehicle Body Building.

The College's role in the selection of the apprentices was limited to applying the Learner Profiler – a computer based programme to determine the ability of the learner to master the subjects.

3.4.2 Employment relationship

All apprentices were contracted by the employer (Busmark) and from the outset the relationship was managed in such a manner that there is no misunderstanding that the apprentices might fall under the jurisdiction of the provider. They are employees first and foremost. Apprentices are subject to the standard personnel regulations of Busmark and clock in for work and clock out daily as any other employee. This is an important principle and is aligned to the philosophy behind the German/Swiss dual system model.

“They (the learners) like to show me what they’ve learnt. I do not get a lot of outside exposure, so you learn from them and you develop with them... and therefore, it changes how you teach”

College Lecturer

3.4.3 Contracting of Apprentices

Busmark did not attempt to integrate the apprenticeship with NC(V) as there is no NC(V) programme for vehicle body building and opted to rather integrate it with NATED theory. However, the merSETA opposed the use of the NATED programme during the implementation of the DSAP and wanted a new occupational qualification to be developed first. This then led to a situation where the merSETA did not allow the company to sign the apprenticeship DSAP funding agreement³⁴ but to rather the normal discretionary grant MoA. Both the apprenticeship route and the learnership route provide learners with an opportunity to qualify as an artisan.

3.4.4 Theory: NATED N2

It was agreed between Busmark, WestCol and the merSETA that theory will be delivered through the medium of NATED programmes. As there is no theory available geared specifically towards Vehicle Body Building, it was decided to use the N2 programme for auto body repair. The main reason for adopting NATED route was that, apart from not having a NC(V) programme for vehicle body building, NC(V) has integrated summative assessment tasks (ISAT) which are very prescriptive and difficult to align with workplace requirements.

³⁴ The DSAP funding agreement does not make provision for NATED but only for NC(V).

A detailed mapping of the N2 qualification with workplace requirements was done and eventually the theory was structured around 8 hour sessions every Monday for a period of 10 weeks, totalling 80 contact hours in the first cycle. The second cycle focussing on plating drawing was structured similarly (8 hours every Monday for 10 weeks). Thereafter a third cycle was implemented due to the high failure rate in plating drawing. All learners have by now passed all subjects except for 5 learners who will attempt Plating Drawing for the third time during May 2017.

The detailed mapping of the theory to the workplace requirements resulted therein that theory chapters were shuffled to fit with workplace schedules (e.g. all welding theory which may appear in different chapters were grouped together to integrate with the simulated practical workshop schedule).

Apprentices were of the opinion that engaging with the lecturer only once a week was too little. This was confirmed by both the College staff and the employer: to ensure that gaps in theoretical knowledge are closed as soon as possible, it will in future be advisable to have two interactions per week with the lecturer. However, even so, this integrated approach had a positive effect on the apprentices and assisted them in completing N2 successfully as they were able to contextualise the theory much better than those who study full time.

3.4.5 Workplace exposure

Workplace exposure is well planned and is still continuing (trade tests will only be attempted in September 2017). Apart from detailed planning, other contributing factors to the success are the fact that the lecture room is on-site at Busmark and the College lecturer delivers theory at Busmark and not the College and secondly Busmark has an on-site well equipped simulated practical training centre/workshop which makes it easy to prepare apprentices or withdraw apprentices from the workplace for corrective training once weaknesses have been identified on the factory floor.

The 24 (now 23) apprentices are organised into 6 groups of 4 each and are systematically and on a rotational basis exposed to every production section of Busmark (e.g. frame building, fibreglass section, front and back end building and fitting, etc.). Once rotation is completed, apprentices choose where they want to do their practical for the remainder of the year. This process is then repeated the next year.

“We are lightyears ahead of our fellow students who are studying full-time because what we do in the workplace makes the theory easy to understand”

Busmark apprentices who are voluntarily attending evening classes to complete additional NATED levels

Workplace exposure is planned in close consultation with the college – the process is guided by workplace requirements and then college activities are integrated with the workplace schedules – this resulted in a high level of integration between theory, simulated practice and workplace exposure.

The workplace mentors were very well orientated and as a result they are very committed. It is regarded by the employer as one of the key success factors of this pilot project. This was done through:

- Identifying carefully all the supervisors and artisans who will work with and guide the apprentices in each production department of Busmark and that they will be the mentors of the apprentices.
- The Training Manager and Technical Training Officer presented to them how the workplace requirements were used to schedule the training on Mondays. All mentors were clear as to what theory and simulated workshop practice the apprentices have been exposed prior to receiving the apprentices on the factory floor.
- All mentors and supervisors were taken through the apprentices' logbooks and how to sign it off and how to score apprentices performance from time to time.
- Mentors and supervisors were informed of the roles of the technical training officer and the SSACI liaison person and that it was the task of mentors to provide immediate feedback to the training officer and liaison person of deficiencies in performance of apprentices so that rapid corrective action can be taken, when necessary.
- Mentors and supervisors were clear that the regular roaming of the technical training officer and liaison person was to provide support and not to interfere with workplace activities.

3.4.6 Quality and quantity of workplace mentors

The fact that both the lecture facility for theory as well as the simulated practical workshop was on-site hugely benefitted the project – it made integration between the three elements of learning (theory, simulated practical and workplace exposure) so much easier. Whilst this is a luxury that will be afforded by only few companies and one should not try and generalise the practice, it had some unplanned benefits from which lessons can be learnt:

- The fact that the lecturer is on-site allowed for the opportunity for the lecturer to be exposed to the factory environment which benefitted him in deepening his theory classes – it was easier to relate the theory to what happens in the world of work.
- The high level of integration resulted in both apprentices and the lecturer learning from each other.

- Remedial training in the simulated workshop is more immediate and relevant as apprentices can be pulled off the production line quickly if corrective action is needed.
- The simulated workshop trainer is on-site and can constantly move between the training workshop and the factory floor where he can assist in mentoring apprentices and get immediate feedback from production artisans.
- Finally, although not of direct relevance, apprentices report for work daily – irrespective of happenings on the campus (such as strikes and demonstrations).

A further organisational arrangement at Randfontein (different from the West Coast) was that there was a clearly identified and allocated coordinator or driver. This role was fulfilled by both the SSACI appointed on-site technical liaison officer and the Busmark on-site technical training officer with the resultant continual interaction between the lecturer and college on the one hand and the workplace and mentors on the other. This interaction naturally drew the technical trainer into the coordination process. The regularity of “walk-throughs” by both the SSACI liaison officer and the technical trainer resulted in immediate feedback which enabled speedy corrective action when needed.

Both the SSACI liaison officer and the technical training officer being artisans and having worked in industry for many years, contributed to the level of integration – they are from the factory floor themselves and understand the needs, pressures and realities of the world of work. All interviewees were adamant that this was pivotal to integrating the three components of the dual system (theory, practical and work exposure). A final success factor is the high level of commitment of senior management and mentors of Busmark.

3.4.7 Production challenges for the employer

Busmark is working near full capacity. It has an extensive order book and all departments are continuously busy. Thus contrary to Dormac, it was much easier to plan ahead on apprentice deployment to, and engagement in, the workplace. It was easier to stick to the planned schedules. This contributes largely to the effective and productive engagement of apprentices and to ensure that they are exposed to all aspects of the trade in a timeous manner.

3.4.8 Approval of workplaces and monitoring of employer commitments

Busmark has a long history of training apprentices and is an approved workplace training site by the merSETA.

There is no evidence that the merSETA engaged in regular monitoring. It would appear that the SETA accepts reports from the company, and that a level of trust has developed. In the case of Busmark this worked and no major problems occurred. However, because of the challenges

identified in not having monitoring in place on the West Coast this is identified as an issue that needs attention.

3.4.9 Work experience versus simulated work

One of the strengths of the Randfontein project is the high level of integration between simulated and workplace experience (and also the theory). This is partly due to the fact that theory is delivered at the workplace, the simulated practical workshop is on-site and that there is a dedicated technical trainer on a full time basis involved. However, there is no reason that this high level of integration cannot be achieved between a workplace and a college – the level of planning and scheduling will determine the extent of integration.

A further factor that impacted on the integration between the simulated work and work experience is the availability of a liaison person from SSACI – this person continuously oversee that the necessary integration does happen. This combined with the technical training officer constantly engaging with the workplace and also the fact that workplace mentors were well orientated all contribute to a high level of integration and rapid corrective action.

3.4.10 Impact of workplace experience

Prior to commencement, detailed planning took place to map both theory and simulated practical training to the needs of the workplace. It was therefore possible to ensure that workplace exposure not only covers what is required by the trade but that as far as possible it is done timeously, i.e. theory, simulated training and workplace exposure is aligned. Busmark staff are confident that the high level and well planned workplace exposure will eventually be reflected in trade test results later in 2017.

3.5 Project Management and Participation

It became evident during the stakeholder engagements for this evaluation that project management and project coordination is an extremely important element, while at the same time it is not well defined or its component parts clearly allocated. In each of the steps outlined in the description of the programme in Randfontein and the West Coast there are instances or experiences that require attention. However, it was not always clear where responsibility lay and in particular who was responsible for communicating the challenges as they arose to the organisation responsible. In the West Coast in particular there were many problems that seem to have been well known but were not always addressed timeously. The following sets out the arrangements made for project oversight.

3.5.1 Steering Committee

A Steering Committee was established with representation by DHET (Skills branch), DHET (VCET branch), DHET (Development and support division), SSACI, the relevant SETAs, specifically merSETA.

At the beginning of the implementation of the DSAP, the steering committee met monthly and as the project progressed towards maturity, meetings were held less regularly (average a two monthly or quarterly basis). Whilst the committee served its purpose to steer the project it became frustrating that some factors limiting implementation were never resolved or took a very long time to finalise. Two examples are:

- Labour relations regulations which concerned employers. This matter was discussed for the first time at the meeting of 28 June 2013, remained on the minutes but received first feedback only by the meeting of 27 May 2014 and remained unresolved on the agenda until the meeting of 04 February 2015 when it was finally removed.
- The absence of a trade test for mechatronics was raised at the meeting of 25 March 2014 and whilst all agreed that it poses a serious threat to the success of the project, it was never resolved. Due to the inability of the MerSETA and NAMB to finalise the trade test, by 24 March 2015 it was decided to remove the mechatronics project from the DSAP pilot.
- Over time the relationship between SSACI and merSETA became strained which was not in the interest of the pilot project.

3.5.2 SSACI

SSACI managed the project and apart from steering committee meetings referred to above, regular meetings were held with participating colleges and employers. SSACI resolved challenges as they arose to ensure the smooth progression of the project. Examples are the appointment of a mathematics teacher to provide extra classes once it became clear that most apprentices on the West Coast failed NC(V)3 mathematics, arranging logistics and accommodation once it became clear that Dormac apprentices would have to be relocated to the workshops in Cape Town from the workshop in Saldanha Bay; the appointment of a technical liaison officer in Randfontein to counter some of the challenges experienced on the West Coast.

All outputs as per the revised business plan were delivered under the guidance of SSACI with the exception of the apprentice tracking study (refer to 3.6.7 below).

However, it needs to be noted that project management was underestimated as a function and what was required in terms of project management was not set out in enough detail. There was

no detailed project implementation plan developed and so it was difficult to hold all the parties to account for lapses and gaps in actioning their responsibilities.

3.5.3 merSETA

The main role of the MerSETA was to ensure that contracts were in place, apprenticeship grants were approved and paid, workplaces were approved and regular monitoring was done. Some difficulties were experienced;

- The contracts of some of the West Coast learners were not finalised timeously and whilst involved in the same trade different types of contracts were signed. The fact that some of the cohort were paid as apprentices and others as learners in a learnership was a problem.
- Workplace approval was given for the two West Coast employers in spite of the fact that they did not provide the full range of work experience and did not have the requisite number of suitably qualified mentors.
- Busmark had to sign a normal discretionary grant funding contract and not the DSAP contract which does not capture the nature and requirements of the dual system.
- All indications are that monitoring and quality assurance site visits were *ad hoc* and limited. Monitoring did not pick up the problem of lack of pipe or aluminium welding that lead to some apprentices failing their trade test. Nor did it pick up that some of the work experience being provided was in fact simulated learning.

3.5.4 DHET/NAMB

DHET participated fully in the process. They had responsibility for funding, policy and the oversight of colleges, as well as responsibility for the qualifications (vi NAMB/QCTO) and trade test centres. However, the development of a trade test for mechatronics by NAMB in conjunction with the merSETA was never finalised as it had to be preceded by the development of an occupational qualification which took some time to be finalised. Eventually the Port Elizabeth (mechatronics) component had to be removed from the project. This was a setback for the pilot project as mechatronics at the Port Elizabeth site could have provided insights into how occupational programmes work in reality. However, what the Department put in place in terms of the 2015 Gazette was extremely clear in its promotion of the dual system, and the requirements on the various parties to the apprenticeship. The putting in place of a national grant and the requirement that SETAs fund apprenticeships also assisted in ensuring that grants and stipends were paid.

3.5.5 Additional comments on project management

It was agreed that SSACI would take on project management of the pilot. Generally, the view of stakeholders is that SSACI played that role well. Recruitment was coordinated, meetings were held with colleges and employers and there was liaison with the relevant SETAs. When serious problems occurred there were interventions, including additional resources being made available – for example when the West Coast apprentices failed Maths additional support was arranged and paid for and when the work dried up in the Dormac plant in Saldanha arrangements were made for the apprentices to relocate to the Dormac plant in Cape Town and accommodation was paid for. It is also a finding of this evaluation that the vast majority of outputs in the revised project plan were implemented, showing that project management of the project as a whole was extremely effective.

What became clear during the evaluation was the complexity of the dual apprenticeship system. There are many things that need attention in the college, at employer level as well as individual learner problems, and in the SETA, and if even a small number of things go wrong the consequences are very great. Just to give some examples of issues not picked up and addressed: there were employers included who were not able to provide the range of work required for the welding trade test - the mechanism for addressing this was available (placing apprentices in another company for a period) but this was not done; there was also inadequate attention paid to mentoring and mentor capacity. Both of these were probably the responsibility of merSETA but the oversight of this work and holding the SETA to its responsibility is a project management function that was not implemented. Within the West Coast college there was a commitment to restructure the programme to provide the theory for the trade but this was not done and this was not raised to the required level in DHET and so the problem was not resolved. If a pilot of this nature is to succeed there is a need for a mechanism to follow through on problems, escalate them where necessary and hold role players to account.

It is important to emphasise that this is not a criticism of the project management of the pilot, but rather a reminder that the project management task is huge and should not be underestimated. There is a need to document all the tasks that be addressed, to allocate responsibility for each of these tasks, and to check that the resources are allocated and responsibility accepted. If problems of this nature are found in a small pilot the implications for an expanded project, possibly involving thousands of apprentices, will be of a wholly different order. This requires there to be careful consideration as to where the resources are located for the project management role and where responsibility should lie. Clearly SSACI cannot and should not be the long term location for project management. The question is should this be

located with employer organisations, with the TVET college or with the relevant SETA. This matter is further discussed under recommendations.

3.6 Findings on the other Deliverables of the Revised Business Plan

3.6.1 Instruments to assess apprentices' competence

The West Coast apprentices were selected from a wider group with NC(V)2 qualification and during the course of their apprenticeship had to complete NC(V)3 and NC(V)4.

The Randfontein group were selected from a wider group with N1 qualification and had to complete N2 during their apprenticeship.

Both groups were exposed to simulated practical and workplace experience – their progress was recorded in learner log-books. Whilst the Randfontein group are still in their workplace practical phase, the training manager indicated that they will be thoroughly tested for readiness to take the trade test prior to the event.

During the course of the apprenticeship, the COMET tool was applied to all apprentices to assess the development of their level of competence. This was part of a much larger application of COMET where over the period 2013 – 2016, a total of 1 400 test takers, TVET Colleges, students and lecturers participated.

Of the apprentices participating, it is worthwhile noting that the second highest average competence was achieved by welders and those welders and mechatronics also achieved an “average well balanced competence” profile. In 2014, 87 trainee welders were tested at West Coast College (WCC), of whom 21 were in DSAP. In 2016, 35 trainee welders were tested at the college, of whom 16 were in DSAP. To date, 11 of the DSAP apprentice welders at West Coast College have passed the trade test, of whom 6 passed on their first attempt, 4 on their second attempt and 1 on the third. 7 of these passers showed improvement in their COMET assessments between 2014 and 2016. Whilst all welders referred to here were not part of the DSAP, it should be noted that the COMET results score the DSAP apprentices 30% higher than non-DSAP apprentices³⁵

3.6.2 Curricula for the dual system apprenticeships

Both qualifications for electricians and plumbers were developed and registered with the QCTO. SSACI appointed a technical specialist to facilitate the development of Curricula for both trades,

³⁵ Brown, 2017 as per notes from Ken Duncan

now referred to as the National Occupational Curricula Content (NOCC previously the National Trade Curricula Content - NTCC). These two qualifications are now being piloted through an initiative of GIZ.

The NOCC ensures standardised interpretation of qualifications and uniform delivery and assessment nationally in each listed artisan trade occupational qualification. It forms the basis for teaching and learning and provides specific guidelines for the development of appropriate manuals and/or support materials for learners, lecturers, trainers, mentors, assessors and moderators within each listed artisan trade occupational qualification.

The NOCC, in detail, sets out the framework to ensure integration between theory, simulated practice and workplace exposure. The NOCC is now available for two trades (electricity and plumbing) and it is now being / has been developed for a range of other priority trades, including welding.

As the Occupational Qualifications are designed around the three learning components of theory, simulated practice and workplace exposure and aims to support the A21 initiative, it is assumed that occupational qualifications will become the preferred mode of delivery in the development of artisans. This is aligned with the aims of the Draft National Artisan Development Trade Test Pass Rate and Quality Improvement Strategy of 2015 and what is already used by the staff at INDLELA as their “bible”.

3.6.3 A model for implementing dual system apprenticeships

The implementation of the DSAP was dissimilar between the West Coast and Randfontein. Even though the West Coast companies used the standardised apprenticeship contract for the NC(V) learners however the College was still perceived to be the “owner” of the apprentices. In Randfontein apprentices were contracted under a learnership agreement and are regarded as employees of the firm. More flexibility was achieved through the use of the relevant NATED programme at N2 level.

The manner in which the project was approached and implemented by Busmark has all the elements of being a model for future use in larger companies where it is possible to host a full complement of same trade apprentices and where a properly equipped training workshop is in existence:

- Apprentices were selected carefully using the intended criteria and process.

- Theory, simulated practice and workplace exposure is well integrated through proper planning and scheduling, assisted by the ability of the stakeholders to locate all three elements on site.
- Mentors and production line staff were well inducted.
- Apprentices are systematically, in a programmed manner, exposed to all facets of the workplace and the trade.
- Performance deficiencies are identified early and immediately rectified in the training workshop.
- The interaction between the apprentices, college and workplace is smoothed by the presence of a liaison officer who himself is an artisan.

“When compared to the DSA learners, the learners at the College are far behind. They are ‘potty trained’ and have no real-life exposure”

College Campus Manager

This model is further enhanced by:

- All the apprentices are employed by one firm
- College lecturers delivering theory in a lecture room at the workplace
- A well-equipped simulated practical training workshop located at the company
- A technical trainer from the company who is completely familiar with the needs and requirements of the workplace and thus able to prepare apprentices in a focused manner.

Whilst this is clearly an effective model it should be noted that the workplace has a lecture facility and training workshop and the College was willing to deliver theory at the workplace. However, there is no reason why this model cannot work with lectures and simulated practical delivered at the College – this also underscores the need to have a liaison officer ensuring sufficient integration between theory, simulated practice and workplace exposure.

In the case of the West Coast project, two companies were involved and some integration challenges did arise (such as apprentices in one company not being exposed to certain elements of welding [i.e. pipe welding and aluminium welding], different remuneration structure, etc.). Should more employers be involved with a group of apprentices it can be expected that more challenges will arise. This highlights the importance of the new pilot project with GIZ to identify challenges of multiple employers in a single project and how to resolve them.

3.6.4 Action research reports

During the course of the project, 5 reports were generated:

- A process evaluation report

- A mid-term review report
- A monitoring survey of colleges report
- A monitoring survey of apprentices’ report
- A monitoring survey of employers’ report

These reports are summarised in Chapter 2.

3.6.5 Newly qualified and holistically competent artisans with both NC(V)4 qualifications and trade test certificates

A target for 30 qualified artisans on the West Coast (welding) and 24 in Randfontein (vehicle body building) has been set. Tracing back to the start of the welding and vehicle body building pilot projects, it is clear that in the case of the West Coast group there was a significant attrition of apprentices in the welding trade and passing the trade test for the welding group was a challenge. In the case of the Randfontein group (vehicle body building) there was only the loss of one apprentice which was due to family circumstances.

Table 6: Performance of pilot project apprentices

Trade	Company	Planned	Contracted	Attrition	Attempted trade test	Qualified (after 1 or more attempts)	Comments
Welding	Westarcor & Dormac	30	24	10	16	13	Some of the 10 may be reinstated after passing maths 3
Vehicle Body Building	Busmark	24	24	1	Not yet	Not yet	Trade tests will only be done in Sept 2017

Source: SSACI project files and College feedback

3.6.6 Analysis of NADSC data to explore patterns and trends in artisan development and employment³⁶

The analysis of NASDC data was the first of three research studies to be conducted during this pilot project as per the revised business plan. There were limitations in the data to be analysed:

- Weak administration of relevant apprentice information within many SETAs

³⁶SSACI, March 2016

- Information from SETAs prior to April 2014 did not distinguish between learnerships, apprenticeships and any other kind of training programme connected to an artisan qualification
- Data was not captured in a single database but a series of separate databases, one for each financial year.

The most concerning findings of this report was that:

- Poor record keeping (especially amongst SETAs) has a negative impact and that all records should henceforth be reduced to a single, continuous database.
- SETAs, who are responsible for sector skills research and who develop sectoral scarce and critical skills lists, should take note that there is still an ongoing mismatch between supply and demand.
- Whilst successful completions were higher than thought (75%) it is most likely the result of the wide range of programmes, standards and assessment criteria amongst the SETAs. The uniform assessment standards since 2014 may affect this figure and should start reflecting what is expected to be a more realistic figure.
- Gender disparities remain – this is important for SETAs who distribute most of the apprenticeship grants in South Africa.
- Artisan trainees are steadily getting older at registration. This is a matter to be further investigated by NAMB and solutions need to be sought and the answer may possibly lie in proper career guidance in progressing from basic education to post-school occupational education and training.

3.6.7 Tracking study of progression of a sample of apprentices

This report was not concluded at the time of submitting the Summative Assessment³⁷. This study is delayed due to the relocation of the NADSC from the Ekurhuleni East College to INDLELA (which also resulted in the retrenchment of the temporary staff that were trained to execute telephonic interviews) and extreme difficulty to obtain correct apprentice contact details (due to the poor quality of data supplied by SETAs to the NADSC).

³⁷ This report has subsequently been completed.

3.6.8 Tracing study of newly certified artisans³⁸

The last of the three studies was to trace newly certified artisans to establish their whereabouts in the labour market and typical employment trajectories. As stated in the summary of the first study (the Analysis of NADSC data), the major limitation of this research was the poor quality of SETA information and records. This is one of the main reasons that whilst the target was to engage with 5 000 newly qualified artisans (noting that more than 10 000 pass trade tests annually), only 4 151 with correct contact details could be identified of which a total of 1 628 individuals agreed to be interviewed. The key findings of this research report are:

- The vast majority (87%) are male.
- The overwhelming majority (96%) were over the age of 21 when they entered their apprenticeships.
- More than half of the interviewees passed the trade test on their first attempt (57.3%) and by the second attempt, 90% have passed the trade test.
- Seventy-three percent are in wage-employment (76% permanent employment and 24% in temporary contracts) with a further 6% in self-employment and 21% unemployed
- When looking for a (new) job 56,5% were successful within three months.
- Even given the poor economic conditions, 54% are employed in the private sector.
- A total of 32.5% indicated they earned more than R15000 per month (this could be substantially higher as 44% of respondents refused to answer the question). It is estimated that more than half of respondents earn beyond R15 000 per month compared to an average of less than R3 000 per month for NC(V) graduates. This information correlates strongly with remuneration trends per occupation in the Construction Industry showing that artisanal occupations earn on par with their degreed counterparts³⁹

3.7 Final remarks

At the centre of the DSAP was the two pilot projects on the West Coast and in Randfontein with the purpose to implement the Swiss/German dual system in South Africa and then assess its applicability to South African conditions. The pilot project however, also included 8 secondary deliverables as summarised in section 3.6 above. With the exclusion of the Tracking study of progression of a sample of apprentices, all other 7 deliverables were executed and successfully concluded in line with the undertaking as per the revised business plan.

³⁸SSACI, September 2016

³⁹CETA, August 2016

4 CONCLUSIONS

In drawing conclusions from the evaluation it is possible to respond to the fourth key question posed in the Terms of Reference, namely; What can be learned from this experience?

Considering how the DSAP has been implemented in these two pilot projects and what is foreseen for the future as contained in the draft regulations, then there are two distinct differences in how these DSAP pilots have been implemented (and are being implemented) versus what is found in Germany, Switzerland and Austria.

Firstly, the rotation cycle between theory (college or school) and workplace in South Africa is measurably longer (every 10 days in the case of the West Coast with a recommendation by employers that it should be extended) whilst in Germany this rotation take place every two or three days.

Secondly, the curriculum in Germany is much broader than what is planned for South Africa with the occupational qualifications. The German school component will include subjects such as economics, politics and the like whilst in South Africa the theory component of occupational qualifications focuses more narrowly on the occupation. The broadest component of an occupational curriculum is to provide for a module on “industry context”.

DHET has published a set of draft regulations⁴⁰ outlining its strategy to improving the trade test pass rate and to improve quality. This strategy adopted the “Seven Steps framework to becoming an artisan”. The diagram below reflects the new Seven Steps.



This model will guide the process of artisan development in future. The conclusions, lessons learnt and recommendations will be made within the context of the strategy as contained in the Gazette with specific focus on the new Seven Steps⁴¹.

⁴⁰ Government Gazette No. 704, *op. cit.*

⁴¹ The realigned Seven Steps which gives way to the (re)introduction of the dual system apprenticeship in South Africa will be used.

4.1 Career management

One element of career management is communicating the need for a specific skill, the economic environment and the employment opportunities available to a qualified artisan. The marked difference between the two pilot projects illustrates the need for research (or at least a survey) of local and regional conditions prior to recruiting apprentices. In Randfontein the employer was clear on his need for qualified artisans. The company is operating in a buoyant sub-sector of the manufacturing sector, resulting in a high possibility of qualified vehicle body building artisans to be permanently employed post the training phase. This was not the case on the West Coast – the majority of the 13 qualified welding artisans are unemployed and are contracted from time to time on a needs basis. This is a result of a depressed economy in the region.

A second important element of career management is the selection of apprentices prior to entering programmes and the application of proper recruitment and selection tools.

In relation to recruitment and selection processes the employers reported problems in Saldanha with some apprentices not being adequate in maths and many not having the best attitude or aptitude for welding. On the West Coast the employers were in the process of learning lessons. A number of tests were being implemented for new applicants which had both a technical and psychometric component. It was agreed that much tighter tests were needed to ensure that the apprentices have the aptitude for and commitment to the selected trade.

In general the apprentices were required to hold a Matric (National Senior Certificate). They were also required to have two years of NCV or Nated 1 qualifications. Employers in addition required a level of comprehension in either English or Afrikaans and some basic mathematics.

Selection processes should form part of a guide to implement the DSA to both employers and Colleges. The process should be tightened to test mathematics capability, commitment and interest as well as aptitude for the trade. Aptitude and attitude need to be tested to ensure that an apprentice is (a) likely to be able to cope with the learning required, including lengthy periods in a factory environment; and (b) have the necessary attitude and discipline needed for a trade.

DHET should ensure the validity and acceptability of the recruitment and selection tool it developed and engage with employers to adopt it as a component of their recruitment and selection practices.

4.2 Learner contracting⁴²

In recent years the learnership route became the favoured option for artisan development, with its yearly exit points, “learner” contract and assessment against unit standards. Various other routes to the trade test were encouraged. Whereas during the period from 2000, legislation and regulations tended to encourage multiple routes with an emphasis on learnerships, the current framework published in 2015 gives preference to the dual system of artisan training and sets out a clear process for its implementation.

There is no doubt that apprentices should be contracted by the employer and for the period of the apprenticeship be an employee of the company under the same company rules as any other employee. It is also important to take cognisance of the fact that if the employer wants the benefit of the amended SARS IT 180 Tax rebate, the apprentice should be employed as the rebate would not be possible if the TVET college is the primary employer.

The challenge will be where more than one employer is needed to meet all the requirements of the trade. For example, in addition to the work done in Dormac there was a need for aluminium welding. This could be done at another employer. An arrangement is needed to enable the sub-contracting or delegatory function to happen. The “lead employer” concept adopted for learnerships could work in that situation. Dormac could be “contracted” to provide the full range of work experience needed and then be allowed to sub-contract the necessary experience that they are unable to provide. This is an area SETAs should attend to and clarify on how legal and labour relations matters will managed.

It is necessary to adopt a standardised contract for the employment of an apprentice. There is an important policy issue that needs addressing - whether employers should be able to opt out of bargaining council agreed rates for artisans. Whilst a SETA cannot force an employer to be part of a bargaining council agreement it can decide to abide by bargaining council agreements and not fund employers who do not accept the agreements. Whether this is a matter of principle (bargaining council rates should apply to all apprenticeships) or whether it is something to be decided on a project by project basis, it is recommended that efforts should be made to avoid an artisan cohort where one rate is paid to a certain group called apprentices and another to a group called learners. This is a matter for DHET and NAMB to engage with.

Equally important to the formalities of contracting is the induction process followed. Employers should be required to conduct induction that addresses the programme as a whole as well as

⁴²It is assumed that steps 2 and 3 will be swapped as recommended in the Gazette

issues of employment, payment, discipline and grievances. Supervisors, mentors, manager and employees all need to be at one with the apprentice and there should be clear expectations and commitments.

4.3 Knowledge and practical

Knowledge is mainly gained through theory and skill is developed through practical workshop activities and exposure in the workplace.

Currently in South Africa knowledge can be gained via various routes such as;

- NC(V)
- Learnerships
- NATED
- Occupational qualifications

This pilot illustrated the weaknesses of various modes of learning. It is clear that the NC(V) programme is not ideal to be integrated with a dual system apprenticeship⁴³. It is ridged, its assessment requirements tend to disconnect it from the workplace schedules and it is designed as rather a full-time programme – integrating it into the dual system does not allow sufficient time for workplace experience or alternatively some elements have to be removed to create the time for workplace experience. In the West Coast case it was the simulated workshop practical which suffered.

Without restructuring the delivery of NC(V) it is unlikely to work. There is a need to develop a mode of delivery of theory within the college that is different to how the NC(V) is delivered and which structures the learning in a manner that enables and complements the work experience. A mind-set change is needed in the college whereby they do not see work experience as a “nice to have” or something to “add on” to the training they are providing, but rather the theory is supporting the worker (not learner) to become practically competent in the trade.

Whilst the NATED programme worked very well in the Randfontein case, it is being phased out and also focusses on theory only – it will be very difficult to use where the employer does not have its own simulated practical workshop as NATED learners at College spend very little time in the College workshop (if at all). Alternatively, the NATED curricula at Colleges needs to be adjusted to create space for sufficient practical workshop based training.

⁴³ It is noted that the NC(V) is currently being reviewed.

Employers stressed the importance of simulated workshop practical as it prepares the apprentice for the workplace. Busmark furthermore stressed the importance of the simulated training workshop not only for initial preparation but also the invaluable role it plays in speedy corrective action.

As the NATED programmes are being phased out, occupational qualifications are seen to resolve integration challenges. The extent to which this is true will be illustrated by the pilot projects for plumbers and electricians which are now being implemented with the support of GIZ. Whilst SSACI has played the project management role in the pilot, ideally the SETA concerned should play that role in future, helping all the role players to get a viable “apprentice class” established in the college where the structure and timeframes are agreed with employers.

Foundational learning and the importance of mathematics cannot be underestimated. The pilot projects selected students who were already in possession of either NC(V)2 or N1. As such the assumption is made that the necessary fundamentals are in place. However, it is clear that no such assumption can be made. Further discussion is needed on how to ensure that those applying to enter apprenticeships have the foundational learning required. Both participating colleges stressed the importance of a foundational programme in preparation for entering an apprenticeship.

It is recommended that consideration be given to the development of a Foundational Learning Programme as a precursor to an apprenticeship. However, this needs to be interrogated as not all parties to the National Artisan Moderation Forum are in favour of the FLP.

Development of College staff

In the context of delivering artisan training in public colleges the calibre of the lecturers and trainers is a critical issue. This is an important matter that can have a marked impact on the successful implementation of the DSA.

DHET is aware of the need to develop College staff to re-align these institutions to be able to implement occupational qualifications and rebuild relations with industry. However, care should be taken that a holistic intervention is required if the dual system is to be implemented successfully in South Africa. Focusing on lecturers will not suffice. The focus should be to capacitate all college staff – principals, campus heads, and lecturers – without the commitment of all it will not be a success. One of the successes of the Randfontein project is the high level of commitment of not only the lecturers, but also the Campus Manager and the College Principal who both understand the different requirements of the DSAP versus normal full-time studies.

Integration will also be advanced if lecturers themselves are artisans. This will not be possible in the short term as it is estimated that only 30% of lecturers are artisans. Therefore, in development of lecturers, proper CPD programmes need to be in place which must include workplace exposure.

The dual system will require interaction between colleges and employers – this will contribute to a better integration of curricula and industry needs. It can also become the basis for placing college lecturers in the workplace or even use workplace artisans to present selected technical classes at the college.

SETAs can play a leading role, both in terms of bringing employers and colleges closer together and in the funding of CPD of College staff and even exposing them to the workplace as it is SETAs who have the best access to their employers.

Engaging public TVET Colleges in the DSA

As stated above, for the DSA to succeed in South Africa, relationships between public TVET colleges and employers needs to be rebuilt. This intention is clearly reflected in the White Paper on Post-school Education and Training when it states that:

“Since the main purpose of the TVET colleges is to prepare students for the workplace, it is essential that they develop and maintain close working relationships with employers in their areas.⁴⁴”

Not only will this require a total mindshift change from DHET, college management and lecturing staff, it will require a review of the funding model for TVET colleges to allow them to become more responsive and embrace the dual system. The current practice leans strongly in favour of full-time studies (with simulated practical exposure) and only thereafter seeking workplace exposure opportunities – this is not supportive of the dual system.

4.4 Workplace

One of the successes in the German model is that both employers and labour unions are intimately involved in all aspects of artisan development. The German model is a work-based system whilst the current South African system is very much college based and can be summarised as follows:

⁴⁴ Op cit, White paper on Post School Education and Training

Table 7: Work based and college based apprenticeship models

Mainly work-based	Mainly college-based
Companies offer places Learners actively search for places	Colleges and learners search for companies and the learner is “placed” in a “host” company
Work contract: Company – Apprentice Apprentice = Employee	Training agreement: College – Company Apprentice = Student
High share of financing by company	Public sector main source of funding
Apprentice receives remuneration	Apprentice receives a stipend
Companies define training plan	College establish training plan

If South Africa is to move towards a work-based model, it will require extensive planning with the aim to achieve a higher level of integration between theory, simulated practice and workplace exposure. It will also require a high level of commitment and buy in from employers. The DSAP pilot attempted to achieve this and it has been done more successfully in Randfontein than on the West Coast. The intense planning between Busmark and WestCol ensured that:

- Workplace requirements set the pace and theory was integrated into it.
- The transition from the lecture room to the simulated practical workshop to the workplace was seamless.
- Compared to their fellow students who are studying the same subjects full-time at the College, the Busmark apprentices were more advanced and experienced theory to be easier due to the level of contextualisation which existed.

Whilst not explicitly so, the arrangement at West Coast College leaned more towards the College-based system whereby:

- There was limited contact between the employer and the college and in one case it was limited to submitting attendance records to the College and submitting complaints to the College on discipline issues – it was then up to the College to engage with the apprentices to rectify the situation.
- Employers (or at least the supervisors) viewed the apprentices in most cases as “students” which also impacted on who had to take charge of the apprentices.
- Apprentices regarded themselves as students which reflected in their frequent lack of discipline and not taking charge of their own workplace learning.

- Using the NC(V) as the route to obtain the theory also limited integration as its curriculum is much more rigid and difficult to integrate with workplace requirements.

It is therefore important to assess the relative merits of the models in the pilot and to contextualise the relative success in Randfontein and the challenges experienced on the West Coast.

Some problems relate to coordination that was better in Randfontein than on the West Coast. The need for careful planning and integration will be amplified if multiple companies participate at the same time. In Randfontein there was just one employer. This made planning and integration so much easier. However, this is unlikely to be the norm and it would be a serious error to base the DSAP model on a model that is clearly one benefitting a larger company only. The West Coast is important as it started to show some of the challenges that will be forthcoming of developing artisans through smaller companies. In the case of the West Coast where only two companies were involved, but even with one additional employer difficulties were experienced in planning the integration of theory with practice because the two companies are very different in what they do. This will be further complicated as the number of participating companies increases. However, this will be a normal occurrence (especially as efforts increase to obtain more participation of small companies). The second pilot project in the plumbing and electrical trades will provide very useful insights into planning needs with multiple companies. However even from this small pilot one important lesson is that a great deal of attention is needed to project manage and coordinate the relationship between the college and the participating employers. The problems experienced were serious and many, but in most cases a solution was either found or could have been found if the problems had been identified and addressed.

It is important that SETAs take note of this and ensure that they are capacitated to understand their role and to be up to the task. The level of engagement shown by merSETA would not be adequate as much more preparatory work will be needed (workplace vetting, induction, mentor training, etc.) and more frequent and thorough monitoring. The practice of contracting employers and managing contracts (which appears to be the way MerSETA manages grants) would not be appropriate for an expanded dual system. A more “hands-on” project management approach will be needed.

Generally, there are not good relations between the public TVET colleges and employers. Over years, colleges have distanced themselves more and more from employers and there is a general perception that employers do not trust the quality of the output delivered by the colleges. Relationships need to be rebuilt.

This DSAP pilot project at both venues illustrated that it can be done. Especially in the case of Randfontein, a strong relationship was/is being built with the WestCol TVET college. There are also the beginnings of relationships being built with North link and West Coast though not to the same level as WestCol. On the West Coast one of the employers was developing a relationship with the college, whereas the larger participating employer did not. Clearly the potential exists, but key actions are needed to achieve this.

Drawing from the experience with both colleges the following elements of a possible framework can be deducted:

Flexibility. Colleges have to be flexible in implementing the theory and simulated practical components of an apprenticeship. WestCol is clearly very flexible in their approach towards the delivery of the N2 programme. Such commitment needs to be the norm.

One of the problems colleges will face in developing the flexible model or “class of apprentices” will be viability. For a college to restructure provision to suit the employment needs of employers there needs to be a via class. In colleges class sizes can be very large, but in broad terms a class of between 30 and 40 would be viewed as viable. Certainly a class of 20 or less would not be financially viable and so it would have been unreasonable to expect the college to run a separate class for such a number. If a class of 30-40 apprentices could be established where each apprentice is employed and being released at the same time to attend classes, then (subject to the curriculum being appropriate for the particular trade) it would be possible for NC(V) curriculum and programme delivery to be restructured. But to expect a college to deal with 20 or so people located with different employers making different demands would be very difficult. Some level of coordination and planning is needed to set up a viable class at a college, recognising that there has to be adequate work in the locality for 30-40 people which was clearly not the case on the West Coast. It also needs to be noted that such a class needs to be sustained over a three-year period, meaning that dropout and annual failures need to be kept to a minimum.

- **Support structures.** The support structures at the Randfontein project are substantially better than what existed on the West Coast. There are both a workplace technical trainer and a SSACI technical liaison person in place. Busmark has its own technical training centre and lecture room with full time training staff and a training manager. These factors all contribute to the success of the project. However the Randfontein model is one that is most likely only possible with a single large employer. The West Coast is much more

typical of what can be expected in a wider role out of the programme. One of the dilemmas is that with a large company resources can be found to address the project management aspects, whereas with smaller companies this is much more difficult to achieve. Therefore the support structures for small businesses to participate need to be found and the logical place for this is in the relevant SETA. It is acknowledged that SETAs do not have such capacity at present but should be encouraged or required to develop such capacity.

- ***Liaison and communication.*** The Randfontein pilot project clearly illustrates the value of good liaison and communication between the apprentice, college and employer. This calls for an individual to be nominated and tasked to take up this role. It could either be an external person (as is the case in Randfontein) or a nominee from the employer or college. It is advisable that such a person should have sound technical knowledge to be able to interact effectively with mentors on the factory floor.

In the case where there are a number of employers involved the coordination role of such a liaison person will be critical to the success of the programme. This liaison person could be identified by either the employer (especially were all apprentices are placed with one employer) or the College (especially where more than one employer is involved, as was the case on the West Coast). There is also a case to be made for professional bodies/associations to fulfil this role. It could also be argued that this is a SETA role. Certainly it is in the SETAs where the funding exists for such a function. It is however certain that in the case of the liaison being executed by either the professional body/association or SETA, it will become remote and at an arm's length – the intimacy experienced at Randfontein will not be possible to replicate. Perhaps the answer is for the initial relationships to be built by the SETA and for the SETA to establish coordinating arrangements that are based on direct relationships between employers and colleges. Initially the role is located in the SETA but with the intention of gradually withdrawing to allow organic roles and relationships to emerge.

- **Rapid corrective action.** The Randfontein pilot has the benefit of having a technical training workshop on-site. This will not always be possible. Even so, it is critical that during the planning phase cognisance is taken of the need to correct any deficiencies in the apprentice’s skill as soon as possible. Provision for rapid corrective action is critically important and should be an important element of implementation planning to strive for.
- **Involvement of factory floor technical staff.** It is the artisans and foremen on the factory floor that will make or break the apprentice’s development – it is under their supervision and mentorship that the apprentice hones his/her skill. From the onset, the technical staff needs to be involved in planning, scheduling and orientation.

It is important for technical staff to be aware of the content of the theory and simulated practical work, as well as the requirements of the trade test, so that they can both influence the content of workplace learning and ensure that apprentices are exposed in an integrated manner to enhance their knowledge and skill. This will also contribute to the feedback given and rapid corrective action when required. It is a requirement that apprentices be guided in the workplace by a qualified artisan who will become the mentor. The commitment of shop floor mentors is paramount.

It is recommended that DHET or NAMB, in collaboration with relevant SETAs, develop a basic standardised mentor induction programme and make it available to every employer engaging with apprentices. Employers can use this generic induction programme as a basis and expand on it to personalise it to the unique conditions of each respective workplace.

The above leads to the conclusion that the DSAP pilot evaluated in this report needs to be expanded dramatically before any policy adjustments can be made. The involvement of multiple employers in one cohort of apprentices have not been tested (the current pilot with GIZ will contribute largely to a better understanding of this). It is critically important if the aim is to engage more small companies to participate in the dual system. Only once these have been sufficiently piloted can DHET and stakeholder reconsider current policies and implementation structures/processes.

“Artisans are trained in workshops and on factory floors, but decisions regarding their training is made by white collar staff in offices. Foremen should be directly involved”

Workplace training foreman - Vaalmac

4.5 Trade testing and ARPL

Table 8 summarises the trade test results (and number of attempts before passing the trade test) for the West Coast apprentices who did attempt the trade test:

Table 8: Trade test results for the West Coast pilot

Location	Total Targeted	Total Enrolled	Total sent for Trade Test	# Passed first time	# Passed second time	# NYC
West Coast	30	24	16	4	9	3
Performance			67%	25%	56%	19%

Source: SSACI project files

Thus, of 24 enrolled eventually 16 were sent for trade tests of whom 81% passed the trade test to date (some may still attempt the test later). The newly qualified artisan tracking report reflects the following results:

Table 9: Trade test attempts

Passing the Trade Test 1 st attempt	Passing the Trade Test at 2 nd attempt	Passing the Trade Test at 3 rd attempt	Total pass rate after 3 attempts
57.3%	32.6%	8,0%	97.9%

Source: SSACI artisan tracking report

According to the tracking report, 90% of those attempting the trade test pass within two attempts, whilst the DSAP results for the West Coast is 81%. Whilst only marginal, the reasons for these poorer than average results and the fact that a much larger percentage only passed on the second attempt, can be found in the findings of the summative evaluation for the West Coast which includes:

- Using the NC(V) for theory purposes and resultant pressure to consistently “catch-up” with theory and lack of time in the college workshop
- Weaknesses in the college in respect of Maths teaching
- Less committed employers and their view that the apprentices are students and not employees
- Less integration between theory and workplace requirements
- Quality of mentoring and non-adherence to stipulated apprentice-mentor ratios

- In some cases the apprentice not being trained or gaining work experience in a part of the trade that is tested (e.g. pipe welding and aluminium welding).

A key element involved in whether a person is ready for the trade test is formative assessment. It is not possible for this to be done by college staff alone and requires some assessment by the employer. The allocated mentor should be able to assess the competence of the apprentice and determine whether s/he is ready for the test. The implication of this is that mentors should have some training in assessment and how to conduct it. Building such capacity in the workplace would also strengthen capacity for RPL within workplaces.

DHET (NAMB) should ensure that the necessary trade tests, staff and facilities are in place to execute the actual trade test.

4.6 Certification

The West Coast apprentices who qualified and passed their trade tests received their certificates over an extended period of time. In the case of Randfontein Busmark will have to, at an additional cost, send their apprentices to Bloemfontein for trade test purposes as it cannot be accommodated at INDLELA (which is close to Randfontein). These realities are not ideal in the context of promoting the development of artisans.

The DHET proposed web-based trade testing system which will, amongst others, have the effect of increasing the quality of trade testing and eventual certification of artisans more rapidly, is supported.

4.7 Quality assurance

Quality assurance will, in future, be the domain of the QCTO. SETAs will have the important responsibility of workplace quality assurance. This ranges from declaring workplaces ready for artisan training to process monitoring and quality assurance of workplace provision.

These pilot projects found that the merSETA remained at an arm's length from the projects and focussed more on contract management and the payment of grants. This needs to be turned around. SETAs need to be resourceful in executing the workplace quality assurance function and should be actively involved. SETAs need to empower themselves with sufficient knowledge of the various trades within their scope of operation which implies working very closely with employer and professional bodies. Through regular quality assurance engagements with the workplace and being empowered by the necessary knowledge, SETAs can play an important role in liaison between the workplace and the college, advise on corrective action as and when challenges occur and provide general guidance.

Whilst not a quality assurance tool *per se*, the COMET diagnostic tool can be an important aid as it provides a picture of competency development within an individual over time. This information is valuable for the college in adjusting its theoretical and simulated workshop inputs and similarly for the employer to address weaknesses diagnosed and to institute remedial action.

Finally, it is important that SETAs monitor the outcomes and impact of apprenticeship training. Through tracer studies and other methods SETAs should report on the number and percentages of apprentices who obtain work on passing the trade test. This information is important as it will check the assumptions made at the outset in relation to demand and ensure that future planning is informed by accurate assessments of demand in each of the trades.

5 SUMMARY OF RECOMMENDATIONS

These recommendations draw from the summative evaluation (findings) (chapter 3) and the conclusions (chapter 4). The recommendations are structured in accordance to the new (revised) “seven steps to become an artisan” as proposed in the August 2015 Gazette.

Career development

- Establish demand and ensure that demand drives the programme in the locality or industry being served by the programme.
- Communicate the demand effectively within colleges and communities and to prospective apprentices.
- Put in place an effective selection and recruitment processes to ensure that all those entering apprenticeships are suited to the work, both in terms of foundational language and maths, capability and temperament.
- A standardised profile should be used by colleges and a standardised selection tool should be developed for adaptation by employers.

Learner contracting

- Establish the principle that an apprentice must be an employee of the company.
- Develop a funding and administration model that allows for an apprentice to gain work experience in more than one company.
- Ensure that only one contract can be used for an apprentice.
- Induction should be organised as close to contracting as possible to establish clear expectations and commitments from all involved.

Knowledge and practical training

- Detailed planning must be done involving the employers, the college, any other training partners involved and the SETA. A three-year programme needs to be agreed and a detailed implementation plan developed. Roles and expectations need to be clearly spelt out in the plan. In the absence of a natural “lead” employer the relevant SETA should take responsibility for the development of the plan.
- The theoretical component needs to be clearly defined and cannot simply be the relevant “NC(V)” or Nated programme. Some adaptation is needed to ensure that the theory is relevant and that it is structured to achieve the competencies required for the trade.

- The dual system will require a total mindshift within TVET colleges if the intentions of the White Paper on PSET that “... it is essential that they (*TVET Colleges*) develop and maintain close working relationships with employers in their areas⁴⁵” is to be achieved
- A review of the funding model for TVET colleges is required if they are to be responsive to embrace the dual system of training artisans.
- Arrangements for the practical training need to be clearly spelt out and apprentices should have access to relevant machinery and appropriately qualified trainers.
- The programme should spell out how the theoretical and practical training will be put into practice in the workplace. There should be no “gaps” in the programme and all competencies required for the trade test should be addressed.
- Maths must be tested and appropriate arrangements made to ensure that all apprentices are at the required foundational level. Where necessary an appropriate FLP should be a precursor to entering an apprenticeship.
- A programme is needed in the participating public TVET college that must address programme design, administrative support, communications within the college and between participating employers and the development of lecturer capacity and experience. It is specifically recommended that relevant CPD programmes are in place for lecturer development which included workplace exposure.
- SETAs should be tasked to lead a process to create closer links between employers and public TVET colleges.

Workplace

- There needs to be regular alternation between theoretical learning, practical training and work experience. There is no ideal period for each and it is unlikely that the frequency will be in line with that in Germany or Switzerland (3-4 days at work, 1-2 days at college every week). However, the principle should be that there is implementation of training in the workplace that happens within a reasonable time frame. Flexibility is suggested, including different amounts of time in each of the three years, and between different trades.
- There should be a clear distinction made between actual work experience and training. Training or “simulated” work experience should not count as actual work experience. Adequate time doing actual work needs to be structured into the programme.
- The contracting and induction processes referred to above need to be used to ensure

⁴⁵ White Paper on Post-school Education and Training, November 2013

full understanding of all the role players.

- Participating employers should meet a number of basic requirements that should be determined by NAMB and checked by the relevant SETA.
- Particular attention should be paid to the number of qualified artisans, the range of work in the company and the identification and training of mentors. Care should be taken not to allocate an excessive number of apprentices to a workplace.
- A standard mentor training pack should be developed and efforts should be made to ensure that all mentors undergo training prior to or during the apprenticeship.
- SETAs should develop the capacity to conduct hands on support to employers and develop workplaces and the effectiveness of workplace learning.
- Locally based staff are needed to support a cohort of apprentices employed by a number of employers. The coordinating and monitoring role of such staff needs to be clearly defined and the SETA should take the lead and initially fulfil this role, which should include trouble shooting and intervening when things go wrong.
- For the dual system to work effectively and rolled out on a large scale, the pilot will have to be expanded substantially to gain a better insight into the roles of various parties to an apprenticeship programme with regards to matters such as coordination when multiple employers are involved, the delineation of responsibilities between employers, colleges and SETAs, streamlining and adjusting the funding model. Only once these matters have been clarified can DHET and stakeholders reconsider current policies and implementation structures to suit the DSA in South Africa.

Trade Test and ARPL

- Apprentices should only be tested once they are ready. This means ensuring that they have the full range of knowledge, skills and experience needed to take and pass the test.
- Attention needs to be paid to formative assessment and the ability of workplace mentors to determine an apprentice's readiness to be tested. Consideration should be given to including some assessor training in the mentor training programme so as to support mentors in their formative assessment role.
- Urgent attention needs to be given to ensuring that an appropriate number of trade test centres are in place. Apprentices should not experience a situation where no test is available or they have to travel long distances for the test.

Certification

- Once a person has passed the trade test, certification should be a speedy process. It is

important that a person can quickly seek employment based on the qualification.

Quality Assurance

- SETAs should develop capacity to focus more directly on workplace learning, experience and the monitoring and quality assurance thereof.
- SETA quality assurance needs to be defined more clearly to include: workplace and employer approval; supporting mentoring and formative assessment in the workplace; monitoring work experience, including the range of work available and the ratio of qualified artisans to apprentices; supporting and monitoring integration and alignment of theoretical learning, practical training and work experience; monitoring work experience and the log books to ensure that genuine work experience is being provided; taking action when things go wrong.
- The COMET tool should be retained and applied to monitor competency development of apprentices an important progression feedback mechanism.
- SETAs should monitor the effectiveness and sustainability of artisan training. Through tracer studies the numbers and percentages of artisans gaining employment should be established and reported on. This requires that SETAs keep accurate data on apprentices, including contact details. It is accepted that given the standardised reporting requirements of SETAs to NADSC, the quality of information will improve over time.

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