Educational Performance Indicators: Definitions and Methodology

Measuring Student Achievement for
Tertiary Education Organisations

Student Achievement Component and
Youth Guarantee funds
reported through the SDR
Version 8

Version control

Version	Date	Change
8	October 2014	1. Provide link to website frequent questions in 'Introduction'. 2. Add reference to SAC and YG funding source codes to 'Overview of EPIs'. 3. Clarify NZQF level aggregations in 'Overview of EPIs'. 4. Clarify student retention calculation where the student is enrolled in two or more qualifications at the same register level. 5. Add two examples of in-year progression. 6. Add course enrolment record exclusion under 'Methodology for calculating participation rates'.

Acronyms

Acronym	Term
ACE	Adult and Community Education
DOB	Date of Birth
EFTS	Equivalent Full-Time Student
EPI	Educational Performance Indicator
MoE	Ministry of Education
NSN	National Student Number
NZQA	New Zealand Qualifications Authority
NZQF	New Zealand Qualifications Framework
NZSCED	New Zealand Standard Classification of Education
OLAP	On Line Analytical Processing
PBRF	Performance-Based Research Fund
QAC code	Qualification Award Category code
SAC	Student Achievement Component
SDR	Single Data Return
STAR	Secondary Tertiary Alignment Resource
TEC	Tertiary Education Commission
TEI	Tertiary Education Institution
TEO	Tertiary Education Organisation
TES	Tertiary Education Strategy
YG	Youth Guarantee

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Introduction

Purpose of this document

1   The overarching purpose of this document is to describe the methodology for calculating the EPIs and the participation indicator.

2   This document sets out the current business methodology for calculating the EPIs and the participation indicator. The detailed business methodologies are subject to change.

3   The changes between this version and the previous version are summarised in the version control table at the front of this document.

Role of EPIs

4   Educational performance, for the purposes of this document, means activities TEOs undertake that contribute to the Government's vision for the tertiary education system: this requires tertiary education to 'better equip individuals with the skills and qualifications needed to participate effectively in the labour market and in an innovative and successful New Zealand'[1]. This document defines the indicators the Government is using to measure educational performance.

5   TEC's funding is linked to educational performance, and information on the educational performance of all TEOs is published annually. Making information such as completion and retention rates public strengthens the accountability of TEOs and better informs students and employers when they are making choices about tertiary education.

Content of this document

6   This document details the definitions and methodology for calculating the successful course completion, student retention, qualification completion and student progression EPIs and the participation indicator.

7   The methodology used when TEOs merge or one TEO purchases another TEO is described in Appendix A.

8   This version expands the SAC definitions and methodology to apply the EPIs across all SAC funds.

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[1] Minister for Tertiary Education. 2014. *Tertiary Education Strategy 2014–19.* Wellington: Ministry of Education, p 2.

Additional resources

9 Refer to the TEC website **Performance of TEOs page**

Overview of EPIs

Current EPIs

10   The standard internationally recognised measures of student achievement are those relating to student retention, progression, and completion of courses and qualifications. In line with these standard measures, we have developed definitions (specifically 'formulae') for a core set of performance indicators that measure TEOs' educational performance through the progression, retention, and completion achievements of their students.

11   These indicators can be calculated for one or more fund(s) reported through the SDR.

12   The four indicators are as follows:

- Successful course completion is measured by the *EFTS-weighted successful course completion rate*[2]. This is the successfully completed enrolments in courses at a TEO each year, as a proportion of the total enrolments in courses, weighted by the EFTS value of the enrolments.

- Student retention is measured by the *student completion or continuation rate*. This is the number of re-enrolments or qualification completions at a TEO each year compared with the number of students present at the TEO in the previous year.

- Qualification completion is measured by the *EFTS-weighted qualification completion rate*. This is the number of qualifications completed at a TEO each year (weighted by the EFTS value of each qualification), as a proportion of the total enrolments in qualifications in that year (weighted by the EFTS value of the enrolments).

- Student progression is measured by the *completion progression rate*. This is a rate of re-enrolment in a higher-level qualification in the following year for students who have completed a qualification.

13   The definitions and methodology for calculating *participation rates* are also included in this document, although they are not a measure of educational output performance. Participation indicators measure the proportion of students from priority groups engaged in tertiary education.

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[2] EFTS is a measure of consumption of education. A student enrolled in a programme of study full-time for the full-year equates to 1 EFTS.

14   The EPIs are analysed and reported in terms of 'dimensions' relevant to the TES. Reporting by dimensions will help TEOs develop their plan commitments. The dimensions include student demographics such as age and ethnicity (specifically, students aged under 25, plus Māori and Pasifika students) and programme dimensions (such as the level of study and literacy and numeracy). The section titled 'Dimensions' provides more detail.

Indicator development principles

15   The suite of EPIs can be used to measure performance for a variety of different purposes. We have developed indicators that:

- provide information relevant to the allocation of funding

- enable the demonstration of value for money

- measure and demonstrate the range of performance across the tertiary education sector

- use existing information and minimise compliance and administration costs

- are meaningful to the public

- can be, wherever possible, replicated within TEOs' information systems, and

- are useful for TEOs' academic and management decision-making.

Tracking students' educational performance

16   The indicators track students' progress through the tertiary education system. Viewed together as a suite, the indicators provide an overall picture of a TEO's educational performance. These indicators are applicable to all funds. Figure 1 shows a representation of how the indicators track students' achievement at a TEO.

17   Figure 1 has been simplified, so it does not show students who transfer from one qualification to another or students studying more than one qualification concurrently. However, these scenarios are included in the explanatory notes in this document.

Figure 1:   Representation of how EPIs track students' achievement at a TEO
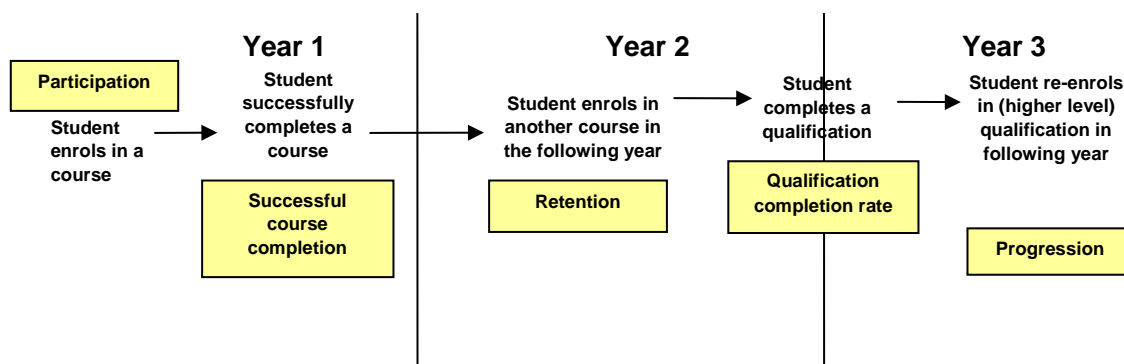
Data used to calculate EPIs

18   The data used to calculate the EPIs comes primarily from the SDR. Each of the EPIs can be calculated for one or more selected fund(s) reported through the SDR. From the 'FUNDING' field in the SDR Course Enrolment File, refer to the SDR Manual for funding source codes. Data is also extracted from the TEC's Qualification Register.

19   The SAC EPIs are calculated using course enrolments from funding source codes 01, 25, 26, 27, 28 and 29.

20   The YG EPIs are calculated using course enrolments from funding source code 22.

21   Data for enrolment events is taken from December SDRs or from the last SDR submitted for the year if the December SDR is missing.

22   Data for course and qualification completion events is taken from all SDRs available at the time of production, but only the latest submitted record will be used.

23   We use the April SDR for the final set of completion data for the previous year's enrolments.

24   Only records associated with formal qualifications are used. These are qualifications for which we expect to see a completion and are identified using the QAC code from the Qualification Register.

25   Courses eligible for PBRF funding are excluded from the successful course completion calculation (where the PBRF-Eligible field in the Course Register File is M, D, L, or C). Such courses are wholly research-based and are likely to have high numbers of still-to-complete enrolments at the time EPIs are calculated.

SAC EPIs and NZQF level aggregations

26   For the purposes of funding or publication of SAC EPIs, NZQF level aggregations will be as shown in Table 1.[3]

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[3] Aggregation is applied to SAC EPIs only. For YG, the EPIs are not aggregated; they are published at each level (i.e. levels 1, 2 and 3).

Table 1:   NZQF level aggregations (applied to SAC funds only)

NZQF level	Aggregated level
1	1–2
2	1–2
3	3–4
4	3–4
5	5–6
6	5–6
7	7–8
8	7–8
9	9+
10	9+

Successful course completion

What the successful course completion indicator reports

27 Successful course completion is measured by the EFTS-weighted successful course completion rate. This rate takes into account the workload of the course. We measure the workload factor using the unit 'EFTS delivered'.

28 The successful course completion indicator can be calculated for one or more **selected fund(s)** reported through the SDR (SAC and YG funds).

29 The indicator is the sum of the EFTS delivered for successfully completed enrolments as a proportion of the EFTS delivered for the total course enrolments ending in a given year ('year n') (see Formula 1).

Formula 1: EFTS-weighted successful course completion rate (as a percentage)

Numerator	EFTS delivered for the total number of successfully completed course enrolments ending in year n
Denominator	EFTS delivered for the total number of course enrolments ending in year n

Methodology for calculating the successful course completion indicator

30 The methodology for calculating the successful course completion indicator is as follows.

    (1) Use the 'master' NSN, if the same student has multiple NSNs.

    (2) Using the Course Completion file, match each course completion record with an enrolment by TEO code, NSN, course code, and course start date. Select the most recent completion record for the enrolment. Matching is done to ensure accuracy, because completion records are stored in their own data sets, separate from enrolment records in the SDR. If two or more completion records are in the latest SDR, prioritise those identified as being completed successfully (where the SDR COMPLETE field value is 2).

(3)   Exclude the following matched records:

- Duplicate records with an identical NSN, start date, course code, and TEO number. Keep only the last submitted enrolment in the course for the student.

- Records for courses in year n for which the TEC does not expect a course completion. These are denoted by QAC code values:
  - Missing or blank
  - 90: Certificates of personal interest
  - 96: STAR
  - 97: Programmes of study taught under contract
  - 99: ACE programmes of study at public TEIs

- Courses eligible for PBRF funding.

(4)   Include the following:

- Only enrolments for the **selected fund(s)**

- All course enrolments with a course end date in year n. For example, if the course end date is in year n, the enrolment is included in the year n group even if the course start date was in year n-1.

(5)   To calculate the EFTS delivered used in the formula, sum the EFTS_MTH (EFTS by Month) field values in the SDR course enrolment record for *the entire enrolment.* Where the course end date is in year n but the enrolment started in year n-1 or earlier, all EFTS_MTH values are summed from each December SDR that the enrolment is included in. Note that the sum of EFTS_MTH does not necessarily equate to the value of the course EFTS factor for the course. Figure 2 shows how the SDR is used to sum the EFTS delivered for a year n course record.

Figure 2:   Data used when counting EFTS delivered

EFTS delivered (EFTS_MTH) taken from December SDR for year n-1

EFTS delivered (EFTS_MTH) taken from December SDR for year n
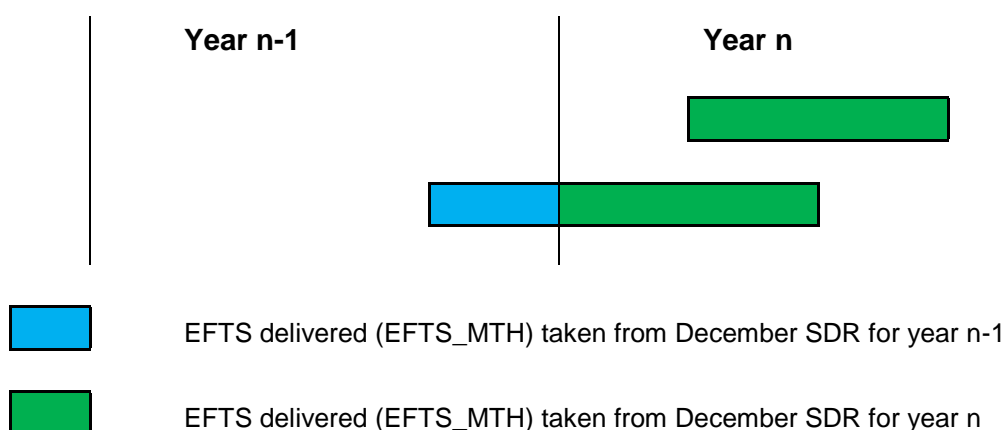
(6)   Include in the numerator only enrolments that have successfully completed the course (where the SDR COMPLETE field value is 2).

(7)　<u>Include</u> in the denominator all enrolments for the **selected fund(s)**, including enrolments:

- not matched to a completion record

- successfully completed (COMPLETE value 2)

- still to complete (COMPLETE values 0, 1, 5, 6, or 7)

- completed unsuccessfully (COMPLETE value 3)

- not completed (COMPLETE value 4), and

- missing a COMPLETE record.

(8)　<u>Include</u> all formal course enrolments with the following QAC code values:

- 25: certificate of proficiency (student enrolled in course that can be credited to a degree)
- 37: certificate of proficiency (student enrolled in course that can be credited to a diploma)
- 98: programmes of study made of selected unit standards.

SDR data used to calculate the full-year successful course completion indicator

31　Data necessary to calculate the full-year successful course completion indicator is taken from the December and April SDRs.

32　Course enrolment data for the full-year completion rate is taken from the reporting year (year n) December SDR.

33　Course completion data for the full-year completion rate is taken from the year n+1 April SDR.

Worked example

34　Table 2 shows a worked example calculating the EFTS-weighted successful course completion rate.

Table 2:　Example – EFTS-weighted successful course completion rate

Calculation key:	Denominator	Numerator	Numerator/Denominator
Course	EFTS by month for enrolments	EFTS by month for successful course completions	EFTS-weighted successful course completion rate
COURSE1	5.601	4.233	
COURSE2	17.566	12.658	
COURSE3	56.010	32.984	
COURSE4	8.000	7.000	
Total for TEO	**87.177**	**56.875**	**65.2%**

Data quality issues affecting the indicator and implications for TEO data submission practices

35   The following issues will affect the successful course completion rate:

- A high proportion of still-to-complete enrolments.

- Changes in course start dates or course codes between returns leading to duplicate enrolments (where the NSN, TEO identifier code, *and* course code *or* course start date are identical). In some instances, particularly when the course spans two calendar years, two enrolment records have an identical NSN, TEO code, and course code, but different course start dates. This means the records have been altered between returns. Usually, one record has a completion, and the other is tagged as 'still to complete'. These closely matching records are probably duplicates, but are treated as valid enrolment records. When this occurs the number of still-to-complete records increases, which lowers the course completion rate.

- Missing completion records.

- Missing or incorrect values in the PBRF-eligible field, if the course is eligible for PBRF funding. TEOs that do not participate in the PBRF are permitted to flag appropriate research courses as PBRF eligible.

36   The successful course completion indicator includes levels 8–9 research-based courses that are not eligible for PBRF funding. Research-based courses are removed from this indicator using the PBRF-eligible field.

Student retention

What the student retention indicator reports

37   Student retention is measured by the student continuation or completion rate at a TEO.

38   The student retention indicator can be calculated for one or more **selected fund(s)** reported through the SDR (SAC and YG funds). The student retention rate is the proportion of individual students (not EFTS) enrolled in one year who either re-enrol in any course at the same TEO in the following year or successfully complete their qualification. The retention rate is calculated using Formula 2 below (where year n is the reporting year).

Formula 2: Student retention rate (as a percentage)

Numerator	Students re-enrolled in year n or completed in year n or year n-1
Denominator	Students with some portion of an enrolment in year n-1

Methodology for calculating student retention

39   The methodology for calculating the student retention indicator is as follows.

(1)   Use the 'master' NSN, if the same student has multiple NSNs.

(2) **Methodology for calculating the denominator**

    (a) <u>Exclude</u> course enrolment records for the following.

- Duplicate enrolments with an identical NSN, start date, course code, and TEO number. Where duplicates exist, retain only the last submitted course enrolment with the highest qualification level for the student per year.

- Enrolments not in the **selected fund(s)**

- Enrolments for courses in year n-1 for which the TEC does not expect qualification completions. These records are denoted by the QAC code values:

  - missing or blank
  - 25: certificate of proficiency (student enrolled in course that can be credited to a degree)
  - 37: certificate of proficiency (student enrolled in course that can be credited to a diploma)
  - 90: certificates of personal interest
  - 96: STAR
  - 97: programmes of study taught under contract
  - 98: programmes of study made of selected unit standards
  - 99: ACE programmes of study at public tertiary education institutions.

    (b) <u>Include</u> all course enrolments with some portion of an enrolment in year n-1. If the course straddles two or more calendar years, include the record as an enrolment in each year.

    (c) Note that since the denominator is a count of distinct students who could be enrolled in several courses, all related to qualification enrolments at different qualification register levels in a given year; use the student enrolment record with the highest qualification register level.

(3) **Methodology for calculating the numerator**

(a) Re-enrolled students (NSNs) must have some portion of an enrolment in year n-1 and a subsequent re-enrolment with a course start date in year n at the same TEO. The re-enrolment may be in a course that is not in the **selected fund(s)**.

(b) Exclude the following as re-enrolments:

- Duplicate enrolments with an identical NSN, start date, course code, and TEO number. Where duplicates exist, retain only the last submitted enrolment in the course for the student per year.

- Re-enrolments where the TEC does not expect a qualification completion. These records are denoted by the QAC code values:
  - missing or blank
  - 25: certificate of proficiency (student enrolled in course that can be credited to a degree)
  - 37: certificate of proficiency (student enrolled in course that can be credited to a diploma)
  - 90: certificates of personal interest
  - 96: STAR
  - 97: programmes of study taught under contract
  - 98: programmes of study made of selected unit standards
  - 99: ACE programmes of study at public tertiary education institutions.

(c) The qualification completions included the numerator must meet the methodology used to derive qualification completions for the qualification completions indicator. Refer to 'Methodology for calculating the qualification completion rate' in the section on Qualification Completion.

(d) Include qualification completions that are 'imprecise matches' in the numerator.

(e) Qualification completions are counted once towards year n reporting, if they occur in either year n or year n-1.

(f) Students do not have to be studying for the same qualification or at the same level to be counted as continuing or completed.

40   Figure 3 shows how possible enrolment scenarios are treated under this methodology. In Figure 3, the student retention rate is calculated for 'year n'. Each rectangular box represents an enrolment. 'QC' represents a qualification completion.

Figure 3:   Examples – 'year n' student retention rate

	Year n-1	Year n	Status	Counted?
	Case 1	Case 1	**Continuing**	**Yes**
Case 2	Case 2		**Not Continuing**	**No**
	Case 3	Case 3	**Continuing**	**Yes**
Case 4 QC		Case 4	**Completed**	**Yes**
Case 5 QC			**Completed**	**Yes**
Case 6	Case 6 QC		**Completed**	**Yes**
	Case 7		**Not Continuing**	**No**
Case 8 QC	Case 8 QC		**Completed**	**Yes**

- The Case 1 student has re-enrolled and is counted as retained, because they have a new enrolment start date in 'year n' at the same TEO.

- The Case 2 student is **not** counted as retained because they have no new enrolment start date in 'year n' and have not completed a qualification.

- The Case 3 student is counted as retained because they have re-enrolled in a course starting in 'year n'.

- The Case 4 student has completed and re-enrolled and is counted as retained but only once, because they completed a qualification in 'year n-1' and re-enrolled in a new qualification in 'year n' at the same TEO.

- The Case 5 student is counted as retained because they completed a qualification in 'year n-1'.

- The Case 6 student is counted as retained because they completed a qualification in 'year n'.

- The Case 7 student is **not** counted as retained, because they do not have a new start date in 'year n' and did not complete a qualification in'year n'.[4]

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[4] This student may re-enrol in 'year n+1', but they are not counted as retained for the 'year n' reporting year.

- The Case 8 student has completed a qualification in 'year n-1' and also continued and completed another qualification in 'year n'. They are therefore counted as retained, but only once.

41 When calculating retention by qualification level, use the NZQF register level of the student enrolment record denominator. Where the student was enrolled in two or more qualifications of differing NZQF register levels, use the enrolment record with the highest level.

42 Where the student was enrolled in two or more qualifications at the same NZQF register level, use the enrolment record with the earliest course end date to calculate retention.

43 Where the student was enrolled in two or more qualifications at the same NZQF register level and the enrolment record has the same course end dates, use the enrolment record with the earliest course start date to calculate retention.

SDR data used to calculate the full-year student retention indicator

44 Year n-1 course enrolment data is taken from the year n-1 December SDR.

45 Reporting year (year n) course re-enrolment data is taken from the year n December SDR.

46 Year n-1 qualification completion data used in the calculation is reported in either the year n-1 August SDR, the year n-1 December SDR, or the year n April SDR.

47 Year n qualification completion data used in the calculation is reported in either the year n August SDR, the year n December SDR, or the year n+1 April SDR.

Worked example

48 Table 3 shows a worked example calculating the student retention rate. A student can only be counted once in columns b, c, or d.

Table 3:   Example – calculating the student retention rate

	a	b	c	d	e = b + c + d	e/a
TEO	No. of students enrolled in year n-1	No. of students re-enrolled in year n	No. of students completed qualification in year n-1	No. of students completed qualification in year n	Total no. re-enrolled and/or completed qualification	Student retention rate
TEO1	23,423	9,369	2342	6,558	18,269	78.0%

Data quality issues affecting the indicator and implications on TEO data submission practices

49   The following issues will affect the student retention indicator.

- Students who enrol at the very end of the year in a course longer than 12 months (see Case 7 in Figure 3). E.g., a student enrols in one 12-month course late in year n-1 and therefore has no opportunity to enrol in another course in year n. The student retention indicator will include the enrolment during year n-1 in the denominator and will not count the student as retained. However, if the student re-enrols in year n+1, then this re-enrolment will be counted in the year n+1 student retention indicator.

- Students taking a year off (e.g., a 'gap year') and re-enrolling at the same TEO in year n+1.

- Qualification completions not being reported or reported after the April SDR in year n+1.

- Data quality issues that affect qualification completions (see following qualification completion section).

Qualification completion

What the qualification completion indicator reports

50   Qualification completions are measured by the EFTS-weighted qualification completion rate.

51   The qualification completion indicator can be calculated for one or more **selected fund(s)** reported through the SDR (SAC and YG funds).

52   The rate is EFTS-weighted to allow for comparisons across TEOs by taking into account the relative size of different qualifications.

53   The qualification completion indicator is the number of qualifications completed at each TEO (weighted by the 'size'[5] of the qualification) divided by the total number of EFTS delivered for the total course enrolments ending in a given year (see Formula 3).

54   Each qualification completion is matched to enrolment records and retained if at least one matched enrolment is in the **selected fund(s)** and if no other exclusion methodology applies.

Formula 3:   EFTS-weighted qualification completion rate (as a percentage)

Numerator	Sum of qualification completions in year n x EFTS value of the qualification
Denominator	EFTS delivered for the total number of course enrolments ending in year n

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[5] The 'size' does not refer to the number of EFTS enrolled in the qualification, but the EFTS value of the qualification taken from the Qualification Register. A bachelor's degree, for example, typically has an EFTS value of 3.

Methodology for calculating the qualification completion rate

55   The methodology for calculating the qualification completion rate is as follows.

(1)   Use the 'master' NSN, if the same student has multiple NSNs.

(2)   **Methodology for calculating the numerator**

(a)   <u>exclude</u> qualification completion records for qualifications where the TEC does not expect a qualification completion, including QAC code values:

- missing or blank

- 25: certificate of proficiency (student enrolled in course that can be credited to a degree)

- 37: certificate of proficiency (student enrolled in course that can be credited to a diploma)

- 90: certificates of personal interest

- 96: STAR

- 97: programmes of study taught under contract

- 98: programmes of study made of selected unit standards, and

- 99: ACE programmes of study at TEIs.

(b)   Duplicate qualification completions with an identical NSN, qualification code, and TEO number combination. (Where duplicates exist, select only the latest submitted record.)

(3)   Since qualification completion records are stored separately in the SDR, each completion needs to be matched to an enrolment to ensure accuracy but also to access other information about the completion. The SDR does not record student enrolments in qualifications, only courses. The matching is done as described below.

(4)   **Matching qualification completions to enrolments**

(a)   <u>Remove</u> course enrolments for non-formal qualifications, QAC code values:

- missing or blank

- 90: certificates of personal interest

- 96: STAR

- 97: programmes of study taught under contract, and

- 99: ACE programmes of study at TEIs.

(b)   <u>Include</u> course enrolments from any funding source to ensure that precisely matched enrolments are not used for other qualification completion records.

(c)　Include qualifications with the following QAC code values (to allow for qualification completions where the student has transferred from these types of qualifications in order to complete a **selected fund** qualification):

- 25: certificate of proficiency (student enrolled in course that can be credited to a degree)

- 37: certificate of proficiency (student enrolled in course that can be credited to a diploma), and

- 98: programmes of study made of selected unit standards.

(d)　Search for a match where the completion and an enrolment have the same student (NSN), TEO, and qualification code. These are called 'precise matches' in this document.

(e)　Search for a match where only the student and the TEO are the same. These are called 'imprecise matches' because we are assuming the enrolment is for the completed qualification at the same level as the course level (or below).

(f)　Remove all unmatched qualification completion records.

(g)　Remove all precise and imprecise qualification completion matches where a matched course enrolment has a course end date later than the reporting year. If there is a course enrolment with an end date after the qualification completion, we assume the student has not completed their studies.

(h)　Remove all precise and imprecise qualification completion matches where there are no enrolment records in the **selected fund(s)**.

(5)　Prioritise matched qualification completion records within the reporting year and with the same 'year requirements met' as follows.

(a)　Precise matches with at least one **selected fund(s)** enrolment.

(b)　An imprecise match (with a **selected fund(s)** enrolment where a precise match does not exist).

(c)　If both precise and imprecise matches exist for the **selected fund(s)**, only count the precisely matched qualification completions.

(d)　Figure 4 below shows the completed qualifications with qualification codes y and z will not be counted because they can only be imprecisely matched with enrolments to other qualifications, and that another precisely matched qualification completion exists.

Figure 4: **Example – excluding qualification completions with imprecise matches to enrolments when a precise match exists**

NSN	Completed qualification	Course enrolments	Match	Counted?
99999999	BA code x	Course A qual code x Course B qual code x	**Precise**	**Yes**
99999999	BSc code y	Course A qual code x Course B qual code x	**Imprecise**	**No**
99999999	BA code z	Course C qual code a Course D qual code a	**Imprecise**	**No**

(e)   If there are more than one imprecisely matched qualification completions (and no precisely matched completions), only one can be counted (see Figure 5).

(f)   Where imprecisely matched qualification completions have different EFTS values, the imprecise match completion with the highest qualification EFTS value is selected.

(g)   If there are imprecise matches with identical qualification EFTS values, then the imprecise match with the highest qualification award level is selected.

(h)   If the award level is identical, then the first imprecise match when sorted alphabetically using the qualification code is selected.

Figure 5: **Example – excluding a second qualification completion with an imprecise match to enrolments**

NSN	Completed qualification	Course enrolments	Match	Counted?
99999999	BA code x, EFTS value 4	Course A qual code y Course B qual code y	**Imprecise**	**Yes**
99999999	Diploma code a, EFTS value 3	Course A qual code y Course B qual code x	**Imprecise**	**No**

(6) **Methodology for calculating the denominator**

    a) <u>Exclude</u> the following course enrolment records:

- Duplicate records with an identical NSN, start date, course code, and TEO number. Retain only the last submitted enrolment in the course for the student.
- Records for courses ending in year n for which the TEC does not expect a qualification completion, which are denoted by the QAC code values:
  - missing or blank
  - 25: certificate of proficiency (student enrolled in course that can be credited to a degree)
  - 37: certificate of proficiency (student enrolled in course that can be credited to a diploma)
  - 90: certificates of personal interest
  - 96: STAR
  - 97: Programmes of study taught under contract
  - 98: Programmes of study made of selected unit standards, and
  - 99: ACE programmes of study at public tertiary education institution
- Records that are not in the **selected fund(s)**

    b) <u>Include</u> PBRF-eligible course enrolments that are in the selected **fund(s)**.

56   When calculating completion by qualification register level:

- The register level values for the denominator are those associated with enrolments; and

- The register level values for the numerator are those associated with the qualification completion.

SDR data used to calculate the full-year EFTS-weighted qualification completion rate

57   Data necessary to calculate the reporting year (year n) full-year qualification completion rate is taken from December and April SDRs.

58   Course enrolment data for the full-year completion rate is taken from the year n December SDR.

59   Year n qualification completion data used in the calculation is reported in either the year n August SDR, the year n December SDR, or the year n+1 April SDR.

Worked example

60   Table 4 shows a worked example of the EFTS-weighted qualification completion rate calculation.

Table 4:   Example – calculating the EFTS-weighted qualification completion rate

Calculation key:		a	b	c	d	e
TEO	Qualification	Sum of qualification completions	EFTS for qualification	Numerator (a×b)	EFTS consumed for courses ending in year n	EFTS-weighted qualification completion rate (c/d)
TEO1	QUAL1	235	1	235	287	
TEO1	QUAL2	126	2	252	401	
TEO1	QUAL3	165	1	165	225	
TEO1	QUAL4	0	2	0	20	
Total TEO1				**652**	**933**	**69.9%**

Data quality issues affecting the indicator and implications for TEO data submission practices

Imprecise matches

61   The described matching of completions to enrolments to calculate the qualification completion rate is necessary to determine whether the qualification includes course enrolments that are in the **selected fund(s)**. Not all qualification completions, however, can be matched to an enrolment with the same degree of certainty. We have implemented the 'imprecise' match to capture learners who were awarded a different qualification from the one they originally enrolled in, such as 'exit' qualifications.

62   Instances where a qualification completion is 'imprecisely' matched with an enrolment usually occur when a qualification is 'embedded' within a completed qualification, or when a student transfers from one qualification to another, or completes a double or conjoint degree.

63   The methodology around the qualification completion indicator is intended to count one imprecisely matched qualification completion per student per reporting year *if a precisely matched qualification completion does not exist*. This methodology is for 'exit' qualifications, where a student has enrolled in a qualification but leaves after fulfilling the requirements for another lower level qualification.

64   The methodology is designed to exclude qualifications that are awarded without any new learning, effort, or EFTS delivered while completing another qualification. The methodology also excludes qualification completions that cannot be matched at all to any enrolment event.

Other data quality issues

65   The following issues will affect the EFTS-weighted qualification completion rate.

- Qualification completions for different qualifications with identical qualification codes. These will not be counted. The TEC qualification register does not differentiate these 'stranded' qualifications.

- Qualification completions awarded by professional associations that have not enrolled the student. Since these completions are not being recorded in the SDR, they will not be counted if the original (enrolling) TEO does not submit the completion in its own SDR.

66   Qualification completions where the latest course enrolment end date is after the qualification completion year. This situation can occur in courses with relatively long durations and where the student may successfully complete such a course early. One possible mitigation is for the TEO to ensure the end date for the last course enrolled in for the qualification is the actual date the student has completed the course (which should be prior to, or the same as the qualification completion year). Note that making this change also requires a change to the EFTS delivered per month associated with the course enrolment.

67   Qualification completions may be affected by fluctuations in enrolments, such as from popular or new qualifications, as well as from established patterns of transferring between qualifications e.g., transferring from a bachelor's degree to an honours degree.

Student progression

What the student progression indicator reports

68   Student progression to a higher level is measured by the completion progression rate.

69   The student progression indicator can be calculated for one or more **selected fund(s)** reported through the SDR (SAC and YG funds).

70   The completion progression rate is the percentage of students who complete a qualification at one TEO and move on within 12 months to pursue a qualification at a higher level at the same or a different TEO within New Zealand (see Formula 4).

Formula 4: Completion progression rate (as a percentage)

Numerator	Number of students enrolled at a higher qualification level within 12 months following the qualification completion
Denominator	Number of students completing a qualification at each level in year n-1

71   Note that a student can be counted more than once, if they complete or re-enrol in more than one qualification at different levels.

72   The student progression rate for year n is based upon qualifications completed in year n-1.

Methodology for calculating the progression rate

73   The methodology for calculating the progression rate indicator is as follows.

   (1)   Use the 'master' NSN, if the same student has multiple NSNs.

   (2)   Qualification completions must have at least one enrolment in the **selected fund(s)**.

   (3)   Deriving the qualification completions used in the denominator follows the same methodology as the qualification completion indicator, except for the exclusion following.

(4) **Methodology for calculating the denominator**

(a) <u>Exclude</u> imprecise matches (and unmatched completions).

(b) <u>Exclude</u> the following course completions with QAC code values:

- Missing or blank

- 25: certificate of proficiency (student enrolled in course that can be credited to a degree)

- 37: certificate of proficiency (student enrolled in course that can be credited to a diploma), and

- 98: programmes of study made of selected unit standards.

(5) **Methodology for calculating the numerator:**

a) <u>Include</u> enrolments after the completed qualification that:

- are at a higher qualification level on the NZQF Register than the completed qualification;

- start in the period from 6 months before to 12 months after the latest course end date associated with the completed qualification;

- start after the earliest course start date associated with the completed qualification;

- finish after the latest course end date associated with the completed qualification; and

- are in courses for which the TEC expects course completions.

b) <u>Include</u> subsequent enrolments in courses from any fund reported through the SDR and subsequent enrolments at any TEO.

c) <u>Include</u> subsequent enrolments in courses with a QAC code value of:

- 25: certificate of proficiency (student enrolled in course that can be credited to a degree)

- 37: certificate of proficiency (student enrolled in course that can be credited to a diploma), and

- 98: programmes of study made of selected unit standards (at levels 1 and 2).

d) <u>Exclude</u> courses with a QAC code value of:

- missing or blank

- 90: certificates of personal interest

- 96: STAR

- 97: Programmes of study taught under contract, and

- 99: ACE programmes of study at public tertiary education institutions.

(6)   If a student has more than one qualification completion at the same qualification level, TEO number and completion year combination (and has subsequent enrolments) then only one qualification completion is selected for the denominator (see Figure 6).

Figure 6:   Example – student has more than one qualification completion at the same qualification level

Year n-1	Year n	Counted?
Completion at L1	New enrolment at L2	**Yes**
Completion at L1		**No**

(7)   If the same student completes two qualifications but at different levels, both are counted if the student enrols in a higher qualification (see Figure 7). One enrolment, then, can be re-used to count multiple progressions for the same student.

Figure 7:   Example – same student completes two qualifications but at different levels

Year n-1	Year n	Counted?
Completion at L2	New enrolment at L3	**Yes**
Completion at L1		**Yes**

(8)   If a student has more than one post-completion enrolment, only one is counted per completed qualification level (see Figure 8).

Figure 8:   Example – student has more than one post-completion enrolment

Year n-1	Year n	Counted?
	New enrolment at L3	**No**
Completion at L1	New enrolment at L2	**Yes**

(9)   If a student completes a qualification in year n-1 and subsequently enrols in a higher level qualification that same year, the student is counted in the EPI progression calculation for year n (see Figure 9).

Figure 9:   Example – student completes a qualification and enrols in a higher level qualification one week after

	Year n-1	Counted?
Completion at L1 ┄┄┄ New enrolment at L2		**Yes (in year n)**
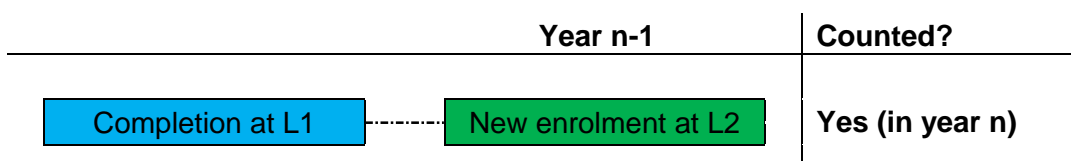
(10)   If a student completes a qualification prior to the end date of the final course and immediately enrols in a higher level qualification, the student will be counted (but the enrolment must be no more than six months prior to the final course end date) (see Figure 10).

Figure 10:   Example – student completes a qualification one week before the final course end date and immediately enrols in a higher level qualification

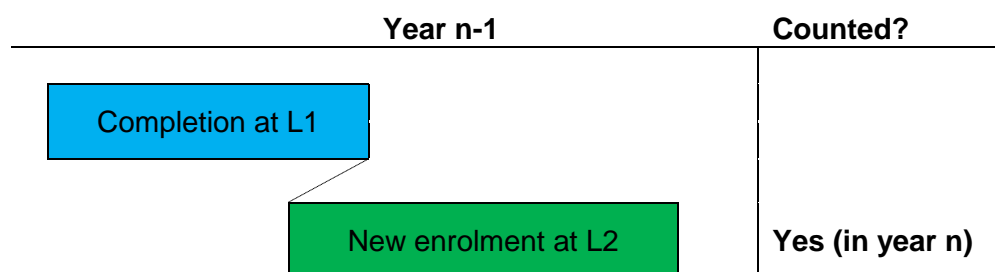|	Year n-1	Counted?
Completion at L1		
New enrolment at L2		**Yes (in year n)**

(11)   The calculation uses only one enrolment and only one qualification completion per student per qualification level. The selection priority is:

(a)   progression to a **selected fund(s)** course enrolment (SAC and YG funds)

(b)   progression to a course enrolment in another fund

(c)   progression to the qualification with the highest EFTS value

(d)   progression to the qualification that starts first (using course start date)

(e)   the completed qualification with the highest EFTS value

(f)   the completed qualification that finishes first (using course end date).

SDR data used to calculate the full-year student progression rate

74   Course enrolment data is taken from the year n-1 December SDR and the year n December SDR.

75   Year n-1 qualification completion data used in the calculation is reported in either the year n-1 August SDR, the year n-1 December SDR, or the year n April SDR.

Worked example

76   Table 5 shows a worked example calculating the completion progression rate.

Table 5:   Example – calculating the total completion progression rate for a TEO

Calculation key:		a	b	b/a
NSN	Qualification	Qualification completed successfully	Re-enrolled at higher level after successfully completing	Completion progression rate
111111	QUAL01	1	0	
444444	QUAL01	1	0	
888888	QUAL01	1	1	
101010	QUAL01	1	1	
Subtotal	*QUAL01*	*4*	*2*	*50.0%*
222222	QUAL02	1	0	
444444	QUAL02	1	1	
666666	QUAL02	1	1	
777777	QUAL02	1	0	
999999	QUAL02	1	0	
101010	QUAL02	1	0	
Subtotal	*QUAL02*	*6*	*2*	*33.3%*
333333	QUAL03	1	1	
555555	QUAL03	1	0	
666666	QUAL03	1	0	
999999	QUAL03	0	0	
Subtotal	*QUAL03*	*3*	*1*	*33.3%*
Total		13	5	38.5%

Data quality issues affecting the indicator and implications on TEO data submission practices

77   Data quality issues and their implications for the progression rate indicator are the same as described for the qualification completion rate.

Participation

What the participation indicator reports

78 The participation indicator is used to monitor the extent to which groups of interest, specifically Māori, Pasifika, and people under-25 years of age are engaged in tertiary education.

79 The participation indicator can be calculated for one or more **selected fund(s)** reported through the SDR (SAC and YG funds).

80 Participation is by **selected fund(s)**.

81 Participation is calculated for any group of interest using Formula 5.

Formula 5: Participation rate (as a percentage)

Numerator	Total EFTS delivered for a group of interest in year n
Denominator	Total EFTS delivered in year n

82 Unlike the successful course completion indicator, the EFTS delivered in the participation formula is apportioned to the specific calendar year in which they are delivered (not in the year of the course end date). For example, a course starts in October of year n and ends in May of the following year. Only the EFTS delivered between October and December of year n will be included in the participation rate for year n. The EFTS delivered between January and May of year n+1 will be included in the participation rate for year n+1.

Methodology for calculating participation rates

83 The methodology for calculating participation rates is as follows.

(1) Use the 'master' NSN, if the same student has multiple NSNs.

(2) Exclude the following course enrolment records.

- Records that do not have funding in the **selected fund(s)** in year n.

- Duplicate enrolments with an identical NSN, start date, course code, and TEO number. Retain only the last submitted enrolment in the course for the student.

- Records for courses in year n for which the TEC does not expect course completions. Courses excluded are those with a QAC code value:

    - missing or blank
    - 90: certificates of personal interest
    - 96: STAR
    - 97: Programmes of study taught under contract, and
    - 99: ACE programmes of study at public tertiary education institutions.

(3)   <u>Include</u> enrolments records for courses with a QAC code value of:

- 25: certificate of proficiency (student enrolled in course that can be credited to a degree)

- 37: certificate of proficiency (student enrolled in course that can be credited to a diploma), and

- 98: programmes of study made of selected unit standards.

(4)   Calculate the total EFTS delivered from the sum of all EFTS delivered falling in each month in the calendar year.

(5)   When calculating participation rates for an ethnic group, the numerator is EFTS delivered for the un-prioritised ethnic group, so that all students who have declared any one of the three ethnicity fields for a particular ethnic group will be included in the EFTS delivered for that ethnic group. The denominator is the EFTS delivered for students of known ethnicity, so those who did not state any ethnic group are excluded.

(6)   When calculating participation rates for more than one dimension apply the dimension filters to the numerator but not the denominator (e.g. students aged under 25 enrolled at levels 4 and above).

Dimensions

Introduction

84   This section lists the dimensions by which the EPIs may be shown when publishing performance information. These dimensions are also used to define Investment Plan commitments, when modelling funding, and to monitor the TES.

85   The dimensions are:

- age

- ethnicity

- NZQF register level

- NZSCED

- QAC code

- relative workload, and

- type of attendance.

Age

How age is used

86   The age of a student is used in conjunction with the EPIs to identify outcomes for learners aged under 25.

- A student's age is calculated using the date of birth ("DOB" field from the Student File in the SDR).

- If more than one date of birth exists, the Master NSN is selected.

- The student's age in years is calculated as at 1 July of the year of interest and rounded down to a whole number.

- Where the age is unknown due to a missing or invalid date of birth, the student is included in the 40+ age group when disaggregating by age band.

Ethnicity

How ethnicity is used

87   The ethnicity dimension is used in conjunction with EPIs to monitor the achievement of groups of interest to the sector and government – specifically, Māori and Pasifika students.

88   TEOs report up to three ethnicity (ETHNIC) codes for a student with each Student File. Students who report multiple ethnicities are counted once in each group with which they identified themselves. For example, a student who reports both Māori and Tongan ethnicities is counted once in the Māori group and once in the Pasifika group.

89   The following methodology has been applied to all indicators, including participation, when the indicator is disaggregated by ethnicity.

- Exclude students whose ethnicity is not stated (code 999).
- Aggregate students whose ethnicity is Middle Eastern/Latin American/African with those in the "Other" ethnicity category

NZQF register level

How the NZQF register level is used

90 The NZQF register level is used in conjunction with the EPIs to identify the level of study of a course or qualification. The register level is predominantly used in the calculation of the progression indicator to determine progression to higher level qualifications after completing a qualification.

91 When calculating retention and progression rates by register level, the register level filter is applied only to the denominator. For example, to calculate retention at Levels 4 and 5, we select students who enrolled in Levels 4 and 5 courses for the denominator, then include re-enrolments and qualification completions at any level (not just Levels 4 and 5) for those students in the numerator.

92 The above technique (of applying a register level filter only to the denominator) is not required when calculating successful course completion or qualification completion by register level. Qualification completion is first calculated at the qualification level anyway before being summed to derive a rate for the TEO and enrolments and completions for courses are, by definition, at the same level.

93 The register level is that associated with the qualification and not the course, even when calculating the successful course completion rate.

94 The TEC presents data by register level in different ways in order to meet differing needs. Plan Commitments and associated monitoring reports are designed to target TES priorities which are grouped by levels 1-3 and 4 and above. Publication and performance-linked funding are more suited to a detailed breakdown by register level groupings (Level 1-2, Level 3-4, Level 5-6 etc.).

NZSCED

How NZSCED is used

95 The NZSCED dimension identifies the field of study of a course or qualification.

96 The NZSCED will be used to disaggregate the EPIs by the field of study of courses. This dimension is a six-digit code taken from the course enrolment (for example, 010901 denotes biochemistry and cell biology).

QAC code

How QAC code is used

97 The primary use of the QAC code field is to distinguish between formal and non-formal qualifications.

Relative workload and part-time study

How relative workload is used

98   The relative workload dimension is used to calculate the part-time learning rate, which in turn will be used to calculate funding linked to performance.

99   The relative workload dimension is derived using the EFTS delivered and the EFTS value of the qualification. This dimension provides a measure of the workload undertaken by a student relative to a full-time workload.

100   The methodology used to calculate the relative workload dimension is as follows.

(1)   Use the 'master' NSN, if the same student has multiple NSNs.

(2)   <u>Exclude</u> course enrolment records for the following.

- Duplicate records with an identical NSN, start date, course code, and TEO number. Retain only the last submitted enrolment in the course for the student.

- Records that do not have funding for the **selected fund(s)** ending in year n.

- Records for courses in year n for which the TEC does not expect course completions. Courses excluded are those with a QAC code value of:
  - missing or blank
  - 90: certificates of personal interest
  - 96: STAR
  - 97: Programmes of study taught under contract, and
  - 99: ACE programmes of study at public tertiary education institutions.

(3)   <u>Include</u> all course enrolments with a course end date in year n.[6] For example, if the course end date is 27 August of year n, the enrolment will be included in the year n group.

(4)   We will use the December SDR to select the course enrolments for year n or the latest return available, if the TEO has not submitted its December SDR. See Figure 2 to see the SDR used to sum the EFTS delivered for a year n course record.

(5)   The EFTS delivered used in the calculation includes the EFTS_MTH field values of the SDR for the entire enrolment, even if the enrolment extends into the next calendar year. For example, if the enrolment starts in year n-1 but the course end date is in year n, all EFTS_MTH values will be summed from the start date (summing year n-1 and year n) for the year n analysis year.

(6)   To calculate the numerator, sum the total EFTS delivered for all courses ending in year n.

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[6] Where CRS_END field (from the Course Enrolment File) year is the same as the reporting year.

(7)   To calculate the denominator, sum the number of distinct students, weighted by the qualification EFTS value, for all qualifications.

(8)   The relative workload is capped at 1 for the calculation. It is possible the relative workload of a qualification could be greater than 1. This could occur if sufficient numbers of students repeat courses.

(9)   Calculate the relative workload using Formula 6.

Formula 6:   Relative workload dimension

Numerator	Sum of EFTS delivered for distinct students with courses ending in year n
Denominator	Number of distinct students enrolled in each qualification x the EFTS value of the qualification

101   The formula for calculating the part-time study rate uses relative workload as follows:

Formula 7:   Part-time study rate

1 – relative workload (capped at 1)

Type of attendance

How type of attendance is used

102   The ATTEND field denotes whether a student is enrolled in a course requiring attendance at scheduled teaching sessions. This variable may be used to indicate variation across TEOs in the proportions of intramural compared with extramural student attendance.

103   The methodology used to calculate type of attendance is as follows.

(1)   Apply steps (1) to (5) of the methodology for calculating relative workload.

(2)   Group the four possible ATTEND values into two groups as follows.

(a)   Group codes 1 – intramural and residing in New Zealand and 4 – intramural and residing overseas as INTRAMURAL.

(b)   Group codes 2 – extramural and residing in New Zealand and 3 – extramural and residing overseas as EXTRAMURAL.

(3)   Take all courses ending in year n for each student at a TEO and sum the EFTS delivered for each student (NSN) as described in step (5) of the methodology for calculating relative workload. This will give the total INTRAMURAL EFTS and total EXTRAMURAL EFTS at a TEO.

(4)   Calculate a proportion of extramural attendance using Formula 8.

Formula 8: Proportion of extramural attendance (for type of attendance dimension)

Numerator	Total extramural EFTS in year n
Denominator	Total EFTS delivered for courses ending in year n

Appendix A: Calculating the indicators when TEOs merge

TEO mergers

104 This appendix describes the methodology used when TEOs merge or one TEO purchases another TEO. Data is merged on a yearly basis as per the methodology described below.

Participation

105 Include course enrolments with a course end date prior to the merger year in any participation figures for the pre merged entity.

106 Include the portion of an enrolment falling in the merger year in any participation figures for the merged entity.

Successful Course Completions

107 Include courses completed with a course end date prior to the merger year in any completion figures for the pre merged entity.

108 Include courses completed with a course end date in or post the merger year in any course completion figures for the merged entity. This includes all EFTS from courses even if the course has a portion of its delivery in the year prior to the merger.

109 For example if TEO A and TEO B were to merge and the merger year was year n, the successful course completion rate for the combined entity in year n would be as shown in the formula below:

Formula 9: Successful course completion rate for combined entity (as a percentage)

Numerator	EFTS delivered for the total number of successfully completed course enrolments ending in year n at TEO A and TEO B
Denominator	EFTS delivered for the total number of course enrolments ending in year n for TEO A and TEO B

Qualification Completion Rates

110 Include qualifications completed with a year requirements met prior to the merger year in any qualification completion figures for the pre merged entity.

111 Include qualifications completed with a year requirements met in or post the year of the merger year in any qualification completion analysis for the merged entity. Match qualification completions to all enrolments for the combined entity to allow the match of qualification completions with enrolments.

112 For example if TEO A and TEO B were to merge in year n, the qualification completion rate for the combined entity in year n would be as shown in the formula below:

Formula 10: Qualification completion rate for combined entity (as a percentage)

Numerator	Sum of qualification completions for TEO A and TEO B in year n x EFTS value of the qualification
Denominator	EFTS delivered for the total number of course enrolments ending in year n for TEO A and TEO B

Student Retention

113   Include students (using NSN) who completed a qualification at one of the pre-merger entities in the year prior to the merger year in the retention rate for the merged entity (students who completed a qualification in the year following the merger will have the completion recorded against the merged entity).

114   Where a student is enrolled at both TEOs they are counted as a single student. For example in the case where a student completes a qualification at TEO A and a qualification at TEO B, and re-enrols at TEO B, this will only count as one retention.

115   Count students (using NSN) who were enrolled in one of the pre merged entities the year prior to the merger year and then enrolled at the merged entity post the merger year as retained for the merged entity.

116   For example if TEO A and TEO were to merge B (with TEO A being the retained identity of the merged entity) in year n (and year n is the merger year) the student retention rate for the combined entity in year n would be as shown in the formula below:

Formula 11: Student retention rate for combined entity (as a percentage)

Numerator	Students who re-enrolled in year n at TEO A or TEO B, or completed a qualification at TEO A or TEO B in year n or year n-1
Denominator	Students with some portion of an enrolment in year n-1 at TEO A or TEO B

Student Progression

117   Include students who completed a qualification at one of the pre-merger entities in the year prior to the merger year in the merged entity's progression rate if they enrol in a higher qualification at a TEO in the year of the merger date.

118   For example if TEO A and TEO B were to merge (with TEO A being the retained identity of the merged entity) in year n (and year n is the merger year) the student progression rate for the combined entity in year n would be as shown in the formula below:

Formula 12: Student progression rate for combined entity (as a percentage)

Numerator	Number of students enrolled at a higher qualification (with the allowed time parameters) following completion
Denominator	Number of students completing a qualification (at either TEO A or TEO B) at each level in year n-1