## Using Cost-IS to cost implementation strategies- a guide

Costing implementation strategies using the Cost-IS instrument involved understanding the project, identifying implementation strategies and associated activities and resources, systematically documenting the resource use data representing the implementation strategies, and valuing activities in monetary units. This process was iterative, rather than linear, but occurred in the logical order described above.

Data sources used to complete the Cost-IS instrument are listed in Table 2. Broadly, the data sources were used for three reasons: (1) to identify implementation activities through understanding the project; (2) to gather resource use data relating to implementation activities; (3) to assign a monetary value to activities. The following sections provide further details on how implementation strategies were costed using the Cost-IS instrument across the three cases studies.

**Table 2.** Data source for completing Cost-IS instrument

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| --- | --- | --- | --- |
| Data sources | **Case study A** | **Case study B** | **Case study C** |
| Cost-IS template 1 (implementation activities) data sources | * Project protocol * Project publications * Project timelines | * Project protocol * Project publications * Project timelines | * Project protocol * Project timelines |
| Cost-IS template 2 (resource use) data sources | * Field notes * Prospective activity log * Context assessment documents * Project administrative documentation | * Field notes * Meeting minutes * Context assessment documents * Project administrative documentation | * Field notes * Meeting minutes * Context assessment documents * Demographic data collected from interview and survey participants |
| Cost-IS template 3 (unit cost) data sources | * Project protocol * Enterprise agreements and award rates * Job advertisements | * Project protocol * Enterprise agreements and award rates * Job advertisements | * Project protocol * Enterprise agreements and award rates * Job advertisements |

### Identifying implementation strategies and activities

Study protocols and discussions with relevant project leads developed a necessary understanding of the projects. Once there was a foundational understanding of the project, implementation strategies and associated activities and resources were identified and recorded in Template 1 (implementation activities template). The Expert Recommendations for Implementing Change (ERIC) framework was used to classify strategies [1]. At times the ERIC cluster name was used because the project’s strategy covered more than one of the ERIC strategies under the cluster. The ERIC framework was not used to describe all implementation strategies because there was either not an ERIC strategy which accurately represented the implementation activities or project leads requested an alternative classification. In these cases, the strategy name was reflective of the study protocol or summarised the implementation activities.

The data sources used to identify implementation strategies and associated activities and resources were project protocols, publications, and timelines (Table 2). This information was required to complete Template 1 (planning template). Typically, Template 1 was drafted first, as some fields in Template 2 (resource use template) are dependent on the information provide in Template 1 for data entry consistency. Completing Template 1 was more straightforward in case studies with clear and less complex implementation strategies. Identifying implementation strategies and activities was more complex in some case studies, particularly in projects that used blended implementation strategies. In these cases, implementation cost data was entered into Template 2 without first finalising Template 1. Then unique activities from Template 2 were subsequently entered into Template 1. Similar activities were categorised together into a strategy.

### Documenting implementation activities and related resource use

To complete Template 2, project documents were reviewed to retrieve data relating to implementation resource use. Activities corresponding to the resource use data are listed in Template 1 as well the type of resources involved (often personnel). The activities were constantly refined through the costing process. The activity name should be informative enough to provide insights into how the implementation strategy was operationalised. Similarly for resources, the level of granularity of personnel roles should be determined typically in discussion with project leads and aim to be appropriate for informing decision making. For example, in case study C it was considered useful to report costs of clinical nurses separately from nurse educators, rather than collate all nursing positions together. Some personnel roles were given a more meaningful name than the position name. For example, in case study C a research nurse position was named ‘project facilitator’ in the analysis as requested by the project lead to reflect the meaningful project roles. In case study C it was helpful to categorise resources into site team or project team (under column Resource- Category in Template 2 and Template 3). This categorisation was informed by discussions with the project lead who wanted to better understand the distribution of implementation costs across teams.

The sources used to retrieve resource use data are outlined in Table 2 and include field notes, prospective activity logs, context assessment documents, project administrative documents, meeting minutes, and demographic data collected from interview and survey participants. The personnel involved for each activity was obtained from primary data sources including listed meeting attendees or personnel mentioned in a field note including the creator of the field note where applicable. Similar roles in the same activity instance were tallied under the ‘number of personnel involved’ column of Template 2. Time estimates were also obtained from the data sources. If time estimates were not available, assumptions were made with input from project leads. As sites had separate data sources in each of our case studies, we checked for duplication after completing Template 2. If duplication was present and the task was relevant to all sites, the time estimate was divided equally across the sites. Case study B had an implementation activity (travel) that was not relevant to all sites and could not be separately allocated to the respective site. In this instance, an additional site (named ‘All sites’) was created to capture these costs in Cost-IS. Non-labour implementation activities, including travel and materials, were noted as ‘non-labour’ under the relevant column in Template 2.

Not all items recorded in primary data sources were considered to be implementation specific. For example in case study A, training was a core component of the intervention and as a result developing, scheduling, and the delivery of training was considered to be an intervention cost and was therefore not included when completing Cost-IS. The training was delivered by a clinical facilitator who was supported by an implementation facilitator; this facilitation support was considered implementation-specific and was therefore costed. Another example is in relation to travel which was required to deliver the intervention and thus was not included in Cost-IS. While it was possible that some implementation activities were conducted during the travel, this decision was made to avoid duplicating travel costs because the intervention was also costed in this project. Additional travel not for the purpose of delivering the intervention were captured as implementation costs in Cost-IS. The final site visits documented within this case study were to disseminate the results, this was considered a research related cost and not an implementation cost.

As highlighted in the examples above, separating implementation costs from intervention and research related activities was challenging in some instances. The following considerations were used to guide this process:

#### Separating implementation from intervention costs

We considered implementation activities as being supportive but non-critical for the intervention. That is, we assumed that the intervention was able to function as planned without the implementation activities. For example, auditing medical records formed a core component of the intervention in case study C. The recruitment of auditor positions was therefore considered intervention related and not costed in Cost-IS. However, facilitation of the audit process was considered implementation-specific and was included in Cost-IS. This consideration was particularly helpful in case studies with digital health solutions because consultation with end-users, a commonly described implementation strategy in other settings, is considered a critical component in the development of digital solutions. This end user engagement was therefore not considered to be implementation-specific in case study B.

#### Separating implementation from research-related costs

Implementation costs also needed to be separated from research costs in some case studies. Separating these costs was assisted by considering what activities would be required to be repeated if another site wanted to implement the intervention, without requiring the research component. For example, case study A involved a funded position internal to the organisation to support data collection for the planned evaluation. This activity was not costed in Cost-IS because it would not be relevant if another site wanted to implement the intervention. Similarly, in case study B, chief investigator meetings were considered research costs and not implementation costs as the investigator group was comprised of researchers who were focussed on evaluating the program.

### Valuing resource use in monetary units

Unique resources were listed in Template 3 (unit cost template) to determine wage rates and non-labour valuations. Study protocol documents and field notes were used to determine the classification and levels of personnel roles. If the classification was unknown for the personnel, job advertisements of similar roles was used search to find a similar classification. Classifications for each personnel were recorded in Template 3. Publicly available enterprise agreements and award rates were used to determine the wage rates for personnel. The most recent annual salary available (2024 or 2023) was used. Location specific rates were used where possible. Hourly rate was calculated and an estimate of organisational ‘on-costs’ (reflecting employee entitlements including superannuation and leave) were added to the hourly rate, at an estimated 25% of the reported wage rate [2]. These calculations were automated in Template 3. Invoices from project documentation were used to value non-labour resources. Information on non-labour resources including source, cost year, and monetary/ opportunity cost were recorded in Template 3. The unit price of non-labour resources was listed in Template 3 in case study B, however this was not the case for case study A. In case study A, unit price and unit amount of non-labour resources was included in Template 2 to preserve data capture granularity.

# REFERENCES

1. Waltz TJ, Powell BJ, Matthieu MM, Damschroder LJ, Chinman MJ, Smith JL, et al. Use of concept mapping to characterize relationships among implementation strategies and assess their feasibility and importance: results from the Expert Recommendations for Implementing Change (ERIC) study. Implementation Science. 2015;10(1):109.

2. Flinders University. Salary rates / salary scales & oncost calculator 2024 [Available from: <https://staff.flinders.edu.au/employee-resources/benefits-pay/salary-rates>.