

CHAPTER 12

E-Health Investment Plan

Realistic e-health investment plans are the product of collaboration between skilled people from the healthcare domain and ICT specialists, so they should be part of your workshops. With these teams in place, the ICT priorities can now switch into an e-health investment plan looking five to ten years ahead. This plan sets out the extra and redeployed resources needed to convert ICT priority decisions into actions and benefits. There are several parts to the core e-health thread, such as:

- Individual e-health projects that comprise the e-health programme of the health and healthcare strategy
- The components of each project
- Realistic timing of deliverables
- ICT and organisational change activities that combine into e-health projects and so the programme
- Fit to the health strategy and investment outcomes
- Spending plan, including the cost of risk
- Human resource plan to deliver and sustain the capacity and capabilities needed for success, especially training for all the skills needed.

Information about the current ICT already in place, its functionalities, its performance and any potential spare capacity is an essential part of an e-health investment plan. The ECSA E-Health Working Group produced a questionnaire to help with this (Commonwealth Secretariat, 2009a). The information ensures that existing capacity and facilities are utilised fully and effectively, before new projects and investment begin.

The e-health thread running through these will help you to match affordability and finance to e-health projects over time. Table 16 is an example of the main themes of an e-health investment plan. Each e-health project should show an indicative description of its costs, benefits and risks over its estimated life cycle to reinforce the realistic, forecast performance. This provides essential information for project management teams and evaluation during the operational stage of the life cycle.

If you publish an e-health roadmap of proposed e-health investment at this step in the loop, it will help to inform citizens and health workers of the ministry's e-health intentions, and the steps it proposes to reach its goals. Some of the information in the template can convert into an e-health road map. The timing of the projects, the human resource plan and capacity plan provide an example. There are two types of roadmap. One deals with the steps needed to move from the e-health strategy to the first e-health project. It includes the arrangements to start engagement with core

stakeholders, especially healthcare professionals, and the need to submit proposals to secure finance for the e-health projects. The second type of road map provides the steps to implement a programme of e-health that changes healthcare. Table 16 shows a way for you to schedule these.

Table 16 incorporates many perspectives. You should use these as a simple checklist and redesign a table that matches your situation.

Table 16. Illustrative components of an e-health investment plan

| <i>Investment activity</i> | <i>Components and timing</i> |
|--|------------------------------|
| Programme | |
| Project 1 | |
| Project 2 | |
| Project 3 | |
| Project 4 etc. | |
| Projects | |
| Stakeholders | |
| Engagement | |
| Requirements | |
| Architecture | |
| Interoperability | |
| Functionality | |
| Applications | |
| Usability | |
| Utilisation | |
| Procurement | |
| Project management | |
| Training | |
| Change | |
| Benefits realisation | |
| ICT hardware | |
| ICT software | |
| ICT middleware | |
| ICT other | |
| Others | |
| Skills and knowledge from the capacity actions | |
| Specific local features and content | |
| Fit to health strategy | |
| Enablers | |
| Affordability | |
| Financing | |
| Life cycles | |

| <i>Investment activity</i> | <i>Components and timing</i> | | | |
|--------------------------------|------------------------------|----------|----------|---------------|
| Timescales | | | | |
| Resources - new | | | | |
| Resources - redeployed | | | | |
| Investment outcomes | | | | |
| Health strategy | | | | |
| Healthcare strategy | | | | |
| Development strategy | | | | |
| General ICT strategy | | | | |
| Spending plan | | | | |
| Years | 1 | 2 | 3 | 4 etc. |
| Capital outlay | | | | |
| Revenue outlay | | | | |
| Capital finance | | | | |
| Revenue finance | | | | |
| Financing sources | | | | |
| Differences | | | | |
| Capital | | | | |
| Revenue | | | | |
| Risk adjusted | | | | |
| Capital | | | | |
| Revenue | | | | |
| Human resource plan | | | | |
| Extra capacity | | | | |
| Leaders | | | | |
| ICT skills | | | | |
| Programme managers | | | | |
| Project managers | | | | |
| Change managers | | | | |
| Trainers | | | | |
| Training | | | | |
| Developed capacity | | | | |
| Leaders | | | | |
| ICT skills | | | | |
| Programme managers | | | | |
| Project managers | | | | |
| Change managers | | | | |
| Trainers | | | | |
| Medical | | | | |
| Nursing | | | | |
| Other healthcare professionals | | | | |

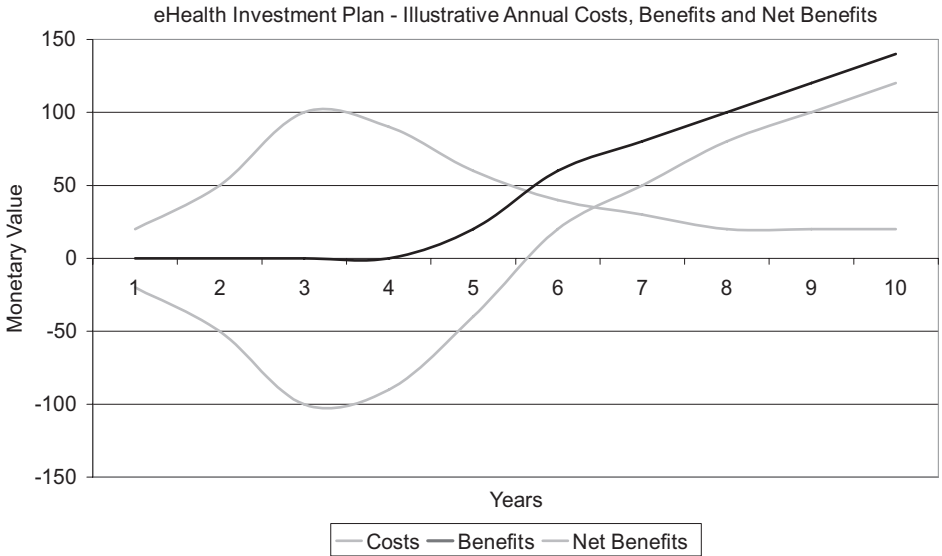
There are two main types of resources for e-health investment plans: new and redeployed. New resources can be extra staff and support from ICT suppliers and consultants. The main requirement for new resources is during the earlier stages of e-health investment. Redeployed resources include staff time allocated to e-health activities, especially engagement and training. They also include the saving from legacy systems that terminate when new e-health investment comes on line. These can be substantial when e-health replaces manual systems.

Three main e-health benefits are quality, access or efficiency. They accrue to a wide range of stakeholders, including:

- Citizens
- Healthcare professionals and other workers
- Healthcare provider organisations of all types in mixed-health economies
- Third party healthcare organisations, such as third party payers and charities
- NGOs and development communities and projects
- Other government agencies.

These benefits result in a net benefit as a socio-economic return (SOR) that extends well beyond the cash gains, if any, of returns on investment (ROI). However, these are specialised analyses that you need not attempt at this stage. You may find it helpful to identify and describe the main features of each e-health project, such as how long it takes for the ICT stages and when the benefits realisation activities can start. Benefits for stakeholders from an e-health project can have a curve as shown in Chart 5.

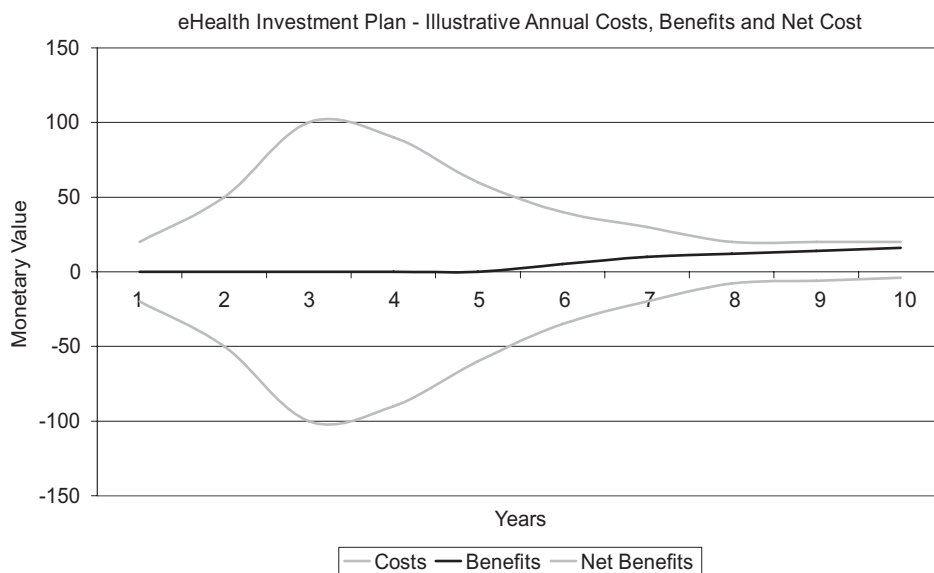
Chart 5. Illustrative cost, benefit and net benefit curves for an e-health project



The eventual net benefit curve shows that the project offers value for money, justifying the investment of cash and other resources. The local nature of an e-health project determines the actual shape of the curves, but all e-health projects incur increased costs in the earlier years, with benefits realised after implementation, and with the objective of realising net benefits after that. An average time to realise net benefits is about four years (Stroetmann *et al.*, 2006). However, it can be more than ten years (EC, 2009a) for more complex projects such as EHRs. Reflecting this reality in the planned timescales of planned e-health projects helps to avoid increased risk, especially from unrealistic shortened timescales and so artificial, but disruptive cost and time overruns.

Not all e-health projects succeed. Chart 6 shows an outcome where benefits are insufficient to realise a net benefit over time; it shows a net socio-economic cost, not value for money, so the project does not justify the investment of cash and other resources. You can use your assessment to avoid this kind of situation.

Chart 6. Illustrative cost, benefit and net cost curves for an e-health project



Where a project is heading in this direction, it needs either modifying significantly or stopping altogether to avoid drawing resources from projects that do offer value for money.

The whole e-health investment plan and programme is an aggregation of these types of curves. Embedded within these are the budgets and financing arrangements for each project. You will have to compile these separately in a spending plan that aggregates each project – see Table 17. You may want to copy this table into a spreadsheet.

Table 17. Illustrative budget and financing plan for an e-health project

| <i>E-health project A</i> | | | | | | | | | | | |
|---------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|--------------|
| <i>Years</i> | <i>1</i> | <i>2</i> | <i>3</i> | <i>4</i> | <i>5</i> | <i>6</i> | <i>7</i> | <i>8</i> | <i>9</i> | <i>10</i> | <i>Total</i> |
| | \$000 | \$000 | \$000 | \$000 | \$000 | \$000 | \$000 | \$000 | \$000 | \$000 | \$000 |
| Resources | | | | | | | | | | | |
| Engagement | | | | | | | | | | | |
| Staff types redeployed, time and cost | | | | | | | | | | | |
| Extra staff types, time and cost | | | | | | | | | | | |
| Requirements | | | | | | | | | | | |
| Staff types redeployed, time and cost | | | | | | | | | | | |
| Extra staff types, time and cost | | | | | | | | | | | |
| Architecture | | | | | | | | | | | |
| Staff types redeployed, time and cost | | | | | | | | | | | |
| Extra staff types, time and cost | | | | | | | | | | | |
| Functionality | | | | | | | | | | | |
| Staff types redeployed, time and cost | | | | | | | | | | | |
| Extra staff types, time and cost | | | | | | | | | | | |
| Applications | | | | | | | | | | | |
| Staff types redeployed, time and cost | | | | | | | | | | | |
| Extra staff types, time and cost | | | | | | | | | | | |
| Usability | | | | | | | | | | | |
| Staff types redeployed, time and cost | | | | | | | | | | | |
| Extra staff types, time and cost | | | | | | | | | | | |
| Utilisation | | | | | | | | | | | |
| Staff types redeployed, time and cost | | | | | | | | | | | |

| <i>E-health project A</i> | | | | | | | | | | | |
|---------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|--------------|
| <i>Years</i> | <i>1</i> | <i>2</i> | <i>3</i> | <i>4</i> | <i>5</i> | <i>6</i> | <i>7</i> | <i>8</i> | <i>9</i> | <i>10</i> | <i>Total</i> |
| | \$000 | \$000 | \$000 | \$000 | \$000 | \$000 | \$000 | \$000 | \$000 | \$000 | \$000 |
| Extra staff types, time and cost | | | | | | | | | | | |
| Procurement | | | | | | | | | | | |
| Staff types redeployed, time and cost | | | | | | | | | | | |
| Extra staff types, time and cost | | | | | | | | | | | |
| Project Management | | | | | | | | | | | |
| Extra staff types, time and cost | | | | | | | | | | | |
| Training | | | | | | | | | | | |
| Staff types redeployed, time and cost | | | | | | | | | | | |
| Extra staff types, time and cost | | | | | | | | | | | |
| Change | | | | | | | | | | | |
| Staff types redeployed, time and cost | | | | | | | | | | | |
| Extra staff types, time and cost | | | | | | | | | | | |
| Benefits realisation | | | | | | | | | | | |
| Staff types redeployed, time and cost | | | | | | | | | | | |
| Extra staff types, time and cost | | | | | | | | | | | |
| ICT hardware, net cost | | | | | | | | | | | |
| ICT software, net cost | | | | | | | | | | | |
| ICT middleware, net cost | | | | | | | | | | | |
| ICT other net cost | | | | | | | | | | | |
| Others | | | | | | | | | | | |
| Staff types redeployed, time and cost | | | | | | | | | | | |
| Extra staff types, time and cost | | | | | | | | | | | |

E-health project A

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Total |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Years | \$000 | \$000 | \$000 | \$000 | \$000 | \$000 | \$000 | \$000 | \$000 | \$000 | \$000 |
| Skills and knowledge for the capacity action | | | | | | | | | | | |
| Staff types redeployed, time and cost | | | | | | | | | | | |
| Extra staff types, time and cost | | | | | | | | | | | |
| Financing | | | | | | | | | | | |
| Capital outlay | | | | | | | | | | | |
| Revenue outlay | | | | | | | | | | | |
| Capital finance | | | | | | | | | | | |
| Revenue finance | | | | | | | | | | | |
| Financing sources | | | | | | | | | | | |
| Differences | | | | | | | | | | | |
| Capital | | | | | | | | | | | |
| Revenue | | | | | | | | | | | |
| Risk adjusted | | | | | | | | | | | |
| Capital | | | | | | | | | | | |
| Revenue | | | | | | | | | | | |
| Risk exposures | | | | | | | | | | | |
| Risk mitigation measures | | | | | | | | | | | |
| Benefits | | | | | | | | | | | |
| Patients | | | | | | | | | | | |
| Healthcare professionals | | | | | | | | | | | |
| Healthcare organisations | | | | | | | | | | | |
| NGOs | | | | | | | | | | | |

This information is essential to prepare proposals to release finance for each e-health project. A separate template is available for this called 'Proposals and Business Cases for E-Health Investment in Projects' (Commonwealth Secretariat, 2009b).

All e-health projects carry risks. It is essential that you identify, measure, manage and mitigate them. Your e-health investment plans must include realistic, robust arrangements for all activities that are to be included in the project management effort. Monitoring by the programme manager and appropriate executives must be explicit and frequent, with a requirement that they take appropriate decisions to minimise risks and preferably avoid them, although this is not always practical.

When you have completed your e-health investment and project plans, the next step is effective dissemination to the stakeholders. If you publish an e-health road map, it can help to inform citizens and health workers. This should use all available media, and include websites, radio, television, newspapers, community resource centres, 'train the trainer' teams and economic, social and political forums. A requirement for effective dissemination and communication through a wide range of media is to have a consistent content over time. The e-health investment plan is the source to achieve this.

