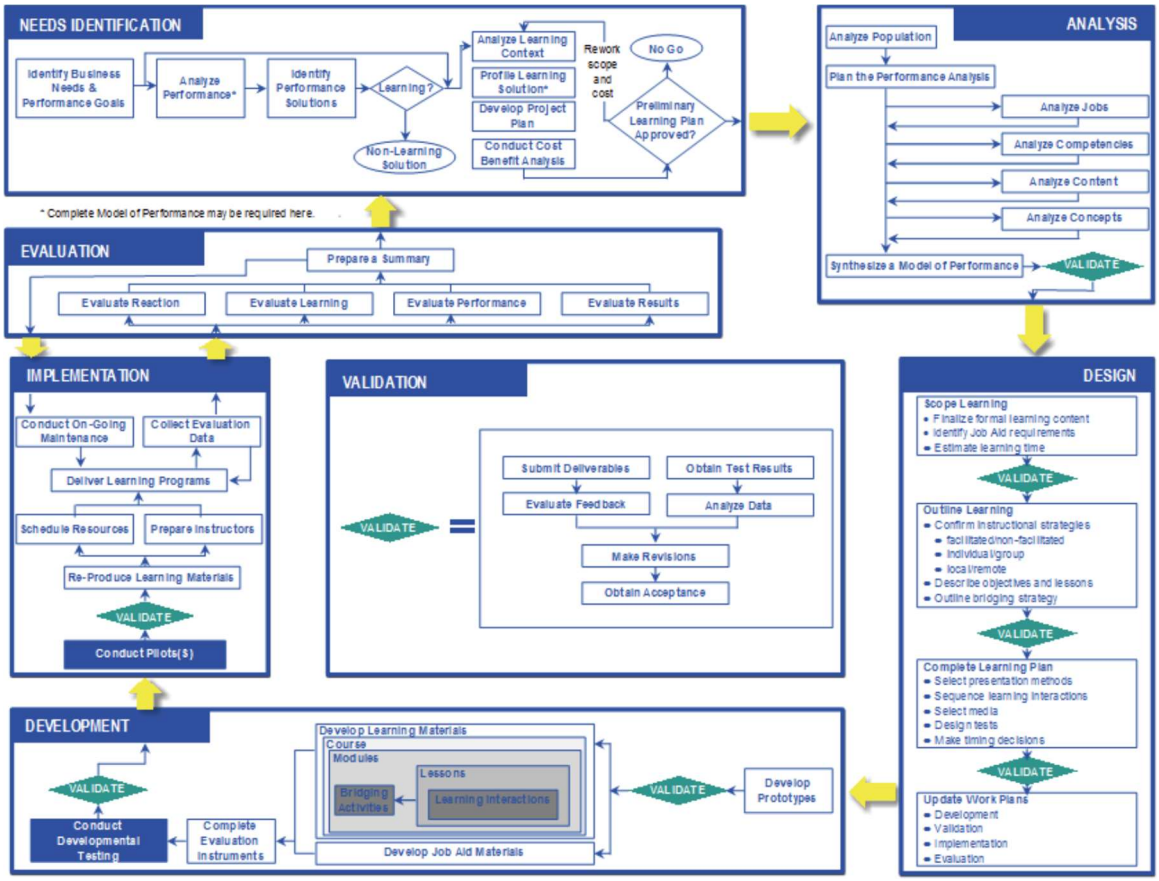
## Part 1: Estimating Duration

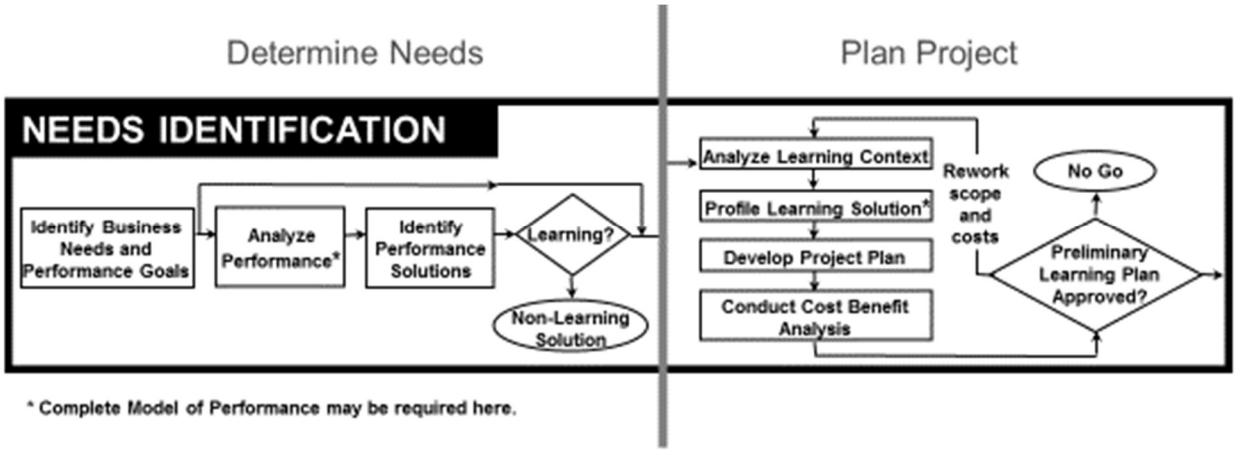
Scoping a learning solution…is it an art or is there some science involved? After 50+ years of scoping a wide range of learning solutions, FKA can say, "Yes." There is an 'art', or at least a skill, to scoping a solution but we have developed a structured approach that provides a scientific framework to the process.

The process we use for scoping and planning a learning solution is very detailed so this blog will be broken into parts.

In a previous blog (Agile ISD) the FKA Instructional Systems Design Methodology was introduced.




What separates FKA's ISD from the traditional ADDIE model (link of other blog) is the Needs Identification phase that precedes the six ADDIE phases.




The first half of Needs Identification phase is called, Determine Needs. This is where you identify the business needs and performance goals; measure existing performance against those needs and determine if a lack of skill and knowledge is contributing to the performance gaps. The second half of Needs Identification is called, Plan Project. Scoping and planning the learning solution begins with the Profile Learning Solution step after you have analyzed the learning context. The scope of the solution includes two main components:

- the time and effort to design and develop the learning materials, plus
- the time and effort to roll-out or implement the solution.

## Steps to Scope the Design

When you first start to think about the learning solution you should be asking four critical questions:

1. How much content is there?
2. What's the best instructional strategy to use?
3. What media will be needed?
4. How will the learning be assessed?

The answers to these questions are provided by completing the four steps of scoping the design of your learning solution:

1. Estimate duration.
2. Choose instructional strategies.
3. Outline media requirements.
4. Plan evaluation.

## Estimate Duration

In our experience, there are three common approaches for estimating the duration of a learning solution.

**Three Approaches to Estimating Duration**

1. Use the client's estimate (i.e., build what they ask for).
2. Compare the new program to an existing learning program.
3. Estimate time based on amount of content and difficulty.

In many cases, the client tells you the duration. For example, a client might tell you they want a one-day course or a 30-minute e-learning lesson.

The second approach is to compare the new learning program to a similar, existing program. For example, a learning program for a new product will be similar to an existing program that is four hours long. So, we can assume the duration of the new program would be four hours as well.

There is not much *science* to either of these approaches. If you use either of these approaches the best you can do is document the rationale for your estimate.

The third approach that we can use brings more structure to estimating duration. The estimate is based on an assessment of the amount of content that needs to be included in the learning and the difficulty of the content. In simple terms the more content, i.e., the more teaching points, the longer it will take to deliver the content; and the harder the content is to learn, the longer it will take.

The challenge with estimating duration this way is that you need to identify, in detail, all the content and how difficult it is. You would get this detailed content from a model of performance which might have been done earlier in Needs Identification when you were analyzing the performance. If it wasn't, you would have to complete one now. Given you have the content outlined, how does that translate into learning duration? It is a three-step process.

**Estimating Duration Based on Performance Data**

1. Count the number of S&K items.
2. Assess difficulty level.
3. Calculate duration.

The starting point is to have the content broken down into its smallest units, the skill and knowledge items. For example, a content analysis of a new product might identify 25 product features, six competitive advantages, four competitive weaknesses and a 10-step sales demonstration process. In total, there are 45 skill and knowledge items that will become our teaching points (25 + 6 + 4 + 10 = 45).

The next step is to make a judgement as to how difficult these teaching point are. It takes less time to learn easy things and more time to learn hard things. The *art* in this step is the judgement used to determine if something is easy or hard to learn. Again, based on our experience we created a table of how many teaching points a learner can master in an hour. This allows for the content to be presented **and** learners allowed to practice.

**Learning Rates**
**(Skill & Knowledge items / Hour)**

| | |
|---|---|
| Easy | 25 |
| Average | 12 |
| Hard | 8 |
| Uncertain | 15 |

Continuing with our new product example, if all the 45 skill and knowledge items are easy to learn then we would plan a 1.8-hour (45/25) learning program. If, on the other hand, we are uncertain of the difficulty level we would plan three hours (45/15).

As stated above these learning rates are based on our experience; its possible that for your content and your population these numbers may not be accurate. If you have a library of existing courses, then it would be worth your time to assess the amount of content in those courses and work out rates that have been achieved within your organization. The most important message here is to document your assumptions about the quantity and difficulty of the content. It provides a reference for you to capture your organization's experience and to use that experience to inform future learning development projects.

Going back to our example, let's assume you used the 'uncertain' learning rate of 15 items per hour and scoped the learning program to be 3 hours in duration. When you finally got to pilot the program, it took closer to five hours to deliver. You now have some data to test your assumptions against. A review of the pilot can determine if some extra content was added to the learning – did it deliver more than the planned 45 teaching points? No, there wasn't any content creep during the development or delivery, nobody added items they thought might be nice to know' What the pilot did tell you was the content was hard to learn and because of that it did not achieve the 'easy' learning rate of 15 items per hour, it was closer to the 'hard' rate of eight items per hour.

At FKA we found ourselves estimating duration from content so often we created a spreadsheet to do the calculations. For each learning program, you document the assumptions you made in the spreadsheet. *See the screen shot below.*

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| 1 | Detailed MoP or Training Content Outline | | Number of items | | | |
| 2 | | Total number of Skill & Knowledge items | 45 | | | |
| 3 | | Total Number of Skill&Knowledge items | 45 | | | |
| 4 | Estimate Total Skill & Knowledge Items | | Number of items | | | |
| 10 | Teaching Points (skill and knowledge elements) | | Number of items | Estimated learning time in hours | | |
| 11 | | Simple teaching points (25/hr) | | 0 | | |
| 12 | | Average teaching points (12/hr) | | 0 | | |
| 13 | | Difficult teaching points (8/hr) | | 0 | | |
| 14 | | Uncertain of difficulty level (15/hr) | 45 | 3 | | |
| 15 | | Totals | 45 | 3 | | |

If we had identified the difficulty level of the content during the planning, that information could have been entered into the spreadsheet and it would have provided a more accurate estimate of five and three quarter hours of learning time. *See the screen capture below.*

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| 1 | Detailed MoP or Training Content Outline | | Number of items | | | |
| 2 | | Total number of Skill & Knowledge items | 45 | | | |
| 3 | | Total Number of Skill&Knowledge items | 45 | | | |
| 4 | Estimate Total Skill & Knowledge Items | | Number of items | | | |
| 10 | Teaching Points (skill and knowledge elements) | | Number of items | Estimated learning time in hours | | |
| 11 | | Simple teaching points (25/hr) | | 0 | | |
| 12 | | Average teaching points (12/hr) | | 0 | | |
| 13 | | Difficult teaching points (8/hr) | 45 | 5.75 | | |
| 14 | | Uncertain of difficulty level (15/hr) | 0 | 0 | | |
| 15 | | Totals | 45 | 5.75 | | |

The more you use this structured approach to estimating the duration of a learning program the more you will develop your ability to identify the difficulty level of the content and predict a learning rate.

## Part 2 – Instructional Strategy

### Choose Instructional Strategies

The second step in scoping the learning solution is to choose the instructional strategy/ies you want to use. If you want to develop self-directed e-learning it is going to take more time and effort than it would to develop a traditional instructor-led program. One of the challenges we found with this step was people did not use the same names for the different strategies and did not define the strategies in the same way. This led us to come up with our Instructional Strategy Framework which provides structure and easily understood labels to the process of selecting the best strategy for your situation.

The framework has four pairs of parameters that can be combined to give clarity to the instructional strategy.

| | |
|---|---|
| 1. Target Learners | Individual<br>or<br>Group |
| 2. Instructional Support | Facilitated<br>or<br>Unfacilitated |
| 3. Delivery Location | Local<br>Or<br>Remote |
| 4. Delivery Timing | Synchronous<br>Or<br>Asynchronous |

### 1. Target Learners

The first decision when selecting a strategy is to consider the target learners. Is the learning solution to support individual learners or groups of learners? The main consequence of this decision is defining what instructional activities are possible. If the program is for groups of leaners, then it can include such activities as discussions, small-group exercises and peer reviews.

### 2. Instructional Support

The second decision considers whether the design will include the use of a facilitator or not. The decision to not use a facilitator will require more development effort to produce materials that provide all the directions, guidance and feedback the leaners will require given no facilitator is available to them.

### 3. Delivery Location

The third decision is the anticipated location of the learners. Will all the learners be in the same location as the other learners and the facilitator? If the learners are remote from each other and the facilitator, and you want the program to include some group activities, then you will need to use a suitable technology to deliver the program to remote locations in such a way as to allow for these group activities.

### 4. Delivery Timing

The final decision is the timing of the delivery of the program. Will the learners interact with the learning content at the same time (synchronously) or can individuals access the learning at any time (asynchronously)? This decision has impact on the scope because it will require the development of different resources to support asynchronous versus synchronous delivery.

## Strategy Choices

Armed with a set of decisions for the four parameters it is easier to select the instructional strategies that are best for the learning need. FKA has defined six basic instructional strategies. Leader-Led

- Self-Directed Learning (paper-based)
- E-Learning
- One-the-Job Training
- Self Instruction
- Stand Alone Job Aids

Below are the four most common instructional strategies with the parameters they align with. Your organization may use different names but the four parameters let you confirm precisely how the content will be delivered.

### Leader-Led (LL) – GROUP, FACILITATED, LOCAL, SYNCHRONOUS

Leader-Led (LL) (also referred to as 'Instructor-Led Training' or 'ILT') is the instructional strategy with which we are most familiar. The majority of our formal education, and many adult learning programs we have attended have been face-to-face leader-led. The degree of interactivity can vary widely. In classic university lectures, communication is virtually all one-way, with no time for application or feedback – just lots of presentation. However, leader-led can be designed with two-way communication and a variety of opportunities to apply the new skills and knowledge and receive feedback.

## e-Learning

e-Learning (also referred to as 'Online Learning') uses Internet and intranet technologies to create, deliver and distribute a broad array of learning solutions (information, instruction and tools) to enhance knowledge and performance.

### Self-Directed e-Learning – INDIVIDUAL, UNFACILITATED, REMOTE, ASYNCHRONOUS

These are sometimes called CBT or WBT.

### Facilitated e-Learning – GROUP, FACILITATED, REMOTE, SYNCHRONOUS

This takes place in virtual classroom.

## On-the-Job Training (OJT) – INDIVIDUAL, FACILITATED, LOCAL, SYNCHRONOUS

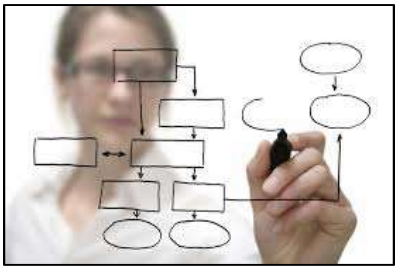
On-the-Job Training (OJT) occurs wholly or partly at the actual job site. A supervisor or coach delivers and monitors the learning – demonstrating new skills, observing performance and giving feedback as required. True on-the-job training (unlike the casual arrangement, where one employee "shows the new guy the ropes") is highly structured and comes complete with supervisor and learner guides, and a series of planned practice/application sessions ending in a formal performance test.

## Stand Alone Job Aids – INDIVIDUAL, UNFACILITATED, LOCAL, ASYNCHRONOUS


Stand alone Job Aids replace the need for formal presentation in which case they can be considered an instructional strategy. Job Aids are easily read and understood tools that guide performance of an ability.

## Part 3 – Assigning Development Ratios*

*Development Ratios also include the effort required for all the Design activities.



The choice of instructional strategy *(See the previous blog)* has a direct impact on the level of effort that will be required to develop learning materials to implement that strategy. For example, self-directed e-learning takes more development effort than leader-led. The critical question then becomes, "How much more effort?"

The common approach to answering this question is to use industry-established development ratios. Based on our experience, FKA has established a series of development ratios for the different instructional strategies. *See the table below.* These ratios assume you already have analyzed the performance problem, defined the specific content for your target audience and are ready to design the program and develop all the necessary learning materials. For example, FKA's development ratio for leader-led training would be expressed as "30:1" meaning you should plan 30 hours of design and development effort for each unit worth of learning produced. A 'unit' could be an hour or a day.

| Instructional Strategy | Description | Development Ratio |
|---|---|---|
| Self-Instruction | • objectives and tests developed | 3:1 |
| Job Aid | • checklist/flowchart<br>• manual<br>• on-line document | 3:1<br>20:1<br>100:1 |
| On-the-Job | • supervisor guide, tests developed | 25:1 |
| Leader-Led (Face-to-face or online) | • minimal materials<br>• sophisticated, detailed materials | 15:1<br>30:1 |
| Self-Directed Learning - paper-based | • infrequent learner response<br>• frequent learner response; test for understanding and feedback incorporated | 35:1<br>50:1 |
| Self-Directed e-Learning<br>Level 1 Sophistication/Complexity | • interactive, linear tutorial, use existing media, very basic interface | 100:1** |
| Level 2 Sophistication/Complexity | • interactive tutorial, minimal graphics, no special animation | 200:1** |
| Level 3 Sophistication/Complexity | • interactive tutorial, minimal graphics, some animation or media | 300:1** |
| Level 4 Sophistication/Complexity | • simulation/immersive game – can have a wide range of functionality and cost | 500:1** |

# Scoping a Learning Solution – Art or Science?

In our *Designing Instruction* program, we introduce our standard ratios which have been in place for many years. After many years using these ratios for a wide variety of projects we know that they are just a starting point and require adjustments to reflect the unique nature of each specific project. The ability to calculate the development ratios for a specific program is very much at the 'Art' end of the Art-Science continuum.

You can check out these links to see ratios used by other organizations:

- atd Association for Talent Development – Time to Develop One Hour of Training
- Chapman Alliance – How Long Does it Take to Create Learning
- Don Clark - Estimating Costs and Time in Instructional Design

The selection of instructional strategy yields a development ratio which can be applied to the duration estimate to provide you with a planned level of effort. If we continue with our example from Part 1 of this series of blogs, we had estimated the duration to teach 45 easy-to-learn skill and knowledge items would be three hours. If we decide to develop minimal or basic leader-led materials, we would apply a 15 to 1 ratio and plan 45 hours of development effort (15 x 3 hours) for the three hours (or a half-day*) of content. On the other hand, if we decided those 45 skill and knowledge items would be difficult to learn, the duration estimate is 5.75 hours which we round up to one day; AND we want more sophisticated materials, we would use a 30 to 1 ratio and plan 30 days of development effort for the one-day program.

* We base our conversion of hours to days on a six-hour instructional day.

To be efficient about documenting these decisions and performing the calculations we added the following page to the spreadsheet tool introduced in Part 1 of this series of blog.

| | | | | Number Selected (should be 0 or 1 for each choice)<br>1 First Choice(s) Selected<br>1 Second Choice(s) Selected<br>1 Third Choice(s) Selected | | |
|---|---|---|---|---|---|---|
| **Design/Development** | **Project** | **Ratio** | **Total Ratio** | | | |
| **On-the-Job** | | | | | | |
| | Supervisor Guide, Tests Developed | | 25 | 25 | Third | On-the-Job |
| **Leader-Led** | | | | | | |
| | Basic Materials | | 15 | 0 | | |
| | Sophisticated, Detailed Materials | | 30 | 30 | First | Leader-Led-Sophisticated |
| **SDL - paper** | | | | | | |
| | Infrequent Learner Response | | 35 | 0 | | |
| | Frequent Learner Response, Test For Understanding and Feedback | | 50 | 0 | | |
| **SDL - eLearning** | | | | | | |
| Level 1 | Interactive, linear Tutorial, use existing media, very basic interface | -50 | 100 | 50 | Second | SDL - eLearning - Level 1 |

The spreadsheet supports the concept of a blended strategy and allows for the identification of up to three instruction strategies for a learning program. In the scenario shown above, the blended strategy includes: leader-led, level 1 self-directed e-learning, and an on-the-job assessment. Notice for this project the default e-learning ratio has been reduced from 100 to 1, to 50 to 1. This reflects the decision to use a rapid development authoring tool (Storyline) and existing templates. Once you have recorded your strategy decision(s) the spreadsheet will calculate the level of development effort needed.

| | | | | Enter specific values to overide defaults | Guideline Ratios |
|---|---|---|---|---|---|
| Course Length (days) | 1.00 | Leader-Led-Sophi | Develop. Ratio | | 30 |
| | | SDL - eLearning - I | Develop. Ratio | | 50 |
| | | On-the-Job | Develop. Ratio | | 25 |
| | | SME Requirement | (% of Develop.) | 0% | |
| Analysis, Design & Development | | | | | |

| | % of Training Time | Training Days | | SME Effort | Developer Effort |
|---|---|---|---|---|---|
| | 70.0% | 0.70 | Leader-Led-Sophisti | - | 21.00 |
| | 20.0% | 0.20 | SDL - eLearning - Le | - | 10.00 |
| | 10% | 0.10 | On-the-Job | - | 2.50 |
| | | | | Total | 33.50 |

To complete the calculation, allocate some of the planned duration to each of the strategies. In this case 70% of the time is assigned to the leader-led strategy, 20% to the e-learning, and 10% to the on-the-job assessment. The spreadsheet then calculates that you should plan 33.5 days of development effort. This spreadsheet lets you document some key design decisions, calculate some important values and save the data for reference. After the development is complete you can come back to the spreadsheet and adjust some of the built-in development ratios as appropriate.

## Part 4 – Media Requirements & Evaluation Plan

By the end of Part 3 you know how to estimate the level of effort needed to develop the required learning program. A key component of this estimation process was applying standard development ratios for the selected strategies. In this part, we want to plan for creating media elements and evaluation instruments that are not typically covered by those standard development ratios.

### Outline Media Requirements

The third step in scoping the learning solution is to identify all the media elements that will require resources that are beyond the capacity of the instructional designers and course developers. The resources can include individuals with special skills (graphic artists, video producers, audio engineers, etc.) or existing media that must be licenced (clip art, stock photos, video or audio clips). At his point in the scoping process you do not know the specifics of the content of these media elements you just want to include the funds needed to produce or acquire the resources.

Knowing the instructional strategy and planned duration of the training will make it easier to speculate on the type and quantity of media elements required. For example, once you know you are planning for a day of leader-led training, then it might be easier to estimate media by thinking in terms of how many items (graphic slides, video clips, etc.) you want to budget for each hour of class time.

### Media Elements


You need to select the type of media elements for each of the instructional strategies you included in your plan. Remember that media elements are required for the introduction, body and conclusion of every instructional unit (course, module and lesson).

The 'Science' in this part of scoping is to break the media requirements into discrete elements. There are four main types of media for which you might contract a professional to create original content for your project:

- Video
- Audio
- Graphic
- Photograph

There is an alternative to creating original media. There are many online stock libraries where you can licence existing media.

| | Production Unit | Cost per Unit |
|---|---|---|
| **Media Element** | | |
| **Video** | | |
| **Professional** | minutes | $ 2,000 |
| **Inhouse** | minutes | $ 1,000 |
| **Amateur** | minutes | $ 100 |
| **Audio** | | |
| **Professional** | minutes | $ 40 |
| **Inhouse** | minutes | $ 75 |
| **Amateur** | minutes | $ 50 |
| **Graphic** | | |
| **Artwork - Complex** | image | $ 1,000 |
| **Artwork - Simple** | image | $ 250 |
| **Diagram - Complex** | image | $ 500 |
| **Diagram - Simple** | image | $ 150 |
| **Animation - Cell** | minute | $ 2,000 |
| **Animation - Path** | minute | $ 300 |
| **Photograph** | | |
| **Professional** | image | $ 100 |
| **Online Library** | | |
| **Illustrations** | image | $ 3 |
| **Photos** | image | $ 3 |
| **Audio** | clip | $ 2 |
| **Video Clips** | clip | $ 25 |

To keep track of the media decision being made as the learning solution is being scoped we added a Media Production sheet to our spreadsheet.

In the Media Production sheet, video, audio and animation elements are priced per minute, e.g., five minutes of profession video. Artwork, diagrams and photographs are priced per unit. Notice that when buying audio or video the unit is per clip or track and the actual duration varies slightly for each item. For our online library we use CanStockPhoto but there are lots of other libraries available.

You will need to update the unit prices with values that reflect the resources you use. Once the unit costs are representative of your situation then you can estimate the number of units you anticipate for each strategy.

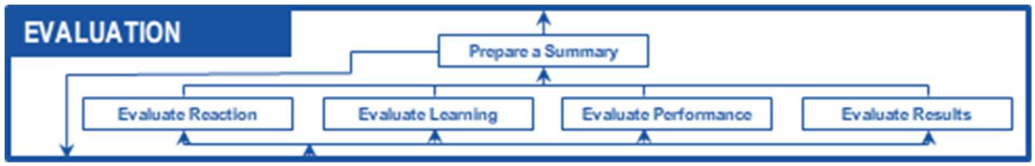
The 'Art' in this step is determining the media type and number of units. Over time with many projects completed you will have a well-structured data set to reference as you scope subsequent projects.

| | | | Leader-Led-Sophisticated | | SDL - eLearning - Level 1 | | On-the-Job | |
|---|---|---|---|---|---|---|---|---|
| | Production Unit | Cost per Unit | # of Units | Total Cost | # of Units | Total Cost | # of Units | Total Cost |
| **Media Element** | | | | | | | | |
| **Video** | | | | | | | | |
| **Professional** | minutes | $ 2,000 | | $ - | | $ - | | $ - |
| **Inhouse** | minutes | $ 1,000 | 10 | $ 10,000 | 5 | $ 5,000 | | $ - |
| **Amateur** | minutes | $ 100 | | $ - | | $ - | | $ - |
| **Audio** | | | | | | | | |
| **Professional** | minutes | $ 40 | | $ - | | $ - | | $ - |
| **Inhouse** | minutes | $ 75 | | $ - | 120 | $ 9,000 | | $ - |
| **Amateur** | minutes | $ 50 | | $ - | | $ - | | $ - |
| **Graphic** | | | | | | | | |
| **Artwork - Complex** | image | $ 1,000 | | $ - | | $ - | 5 | $ 5,000 |
| **Artwork - Simple** | image | $ 250 | | $ - | | $ - | | $ - |
| **Diagram - Complex** | image | $ 500 | | $ - | | $ - | | $ - |
| **Diagram - Simple** | image | $ 150 | 35 | $ 5,250 | | $ - | | $ - |
| **Animation - Cell** | minute | $ 2,000 | | $ - | | $ - | | $ - |
| **Animation - Path** | minute | $ 300 | | $ - | | $ - | | $ - |
| **Photograph** | | | | | | | | |
| **Professional** | image | $ 100 | | $ - | 40 | $ 4,000 | | $ - |
| **Online Library** | | | | | | | | |
| **Illustrations** | image | $ 2 | 0 | $ - | 10 | $ 20 | | $ - |
| **Photos** | image | $ 3 | 10 | $ 30 | 20 | $ 60 | 20 | $ 60 |
| **Audio** | clip | $ 2 | | $ - | 5 | $ 10 | | $ - |
| **Video Clips** | clip | $ 25 | | $ - | 4 | $ 100 | | $ - |
| **Total Production** | | | | $ 15,280 | | $ 18,190 | | $ 5,060 |

In this example the media budget estimate is $38,530 ($15,280 + $18,190 + $5,060) for one day of the learning program implemented using three strategies.

## Evaluation Planning

In FKA's ISD methodology there is an evaluation phase that measures the impact of the learning program at the four levels defined by Donald Kirkpatrick.




| | |
|---|---|
| Reaction | Do the learners like the learning program? |
| Learning | Can the learners demonstrate knowledge and skills as a result of the program? |
| Performance | Has the performance target been reached on the job? |
| Results | How does change in performance impact the organization? |

The standard development ratios that we applied earlier include some effort to write level-two questions that should be part of every learning program. If you want to include the other three levels of evaluation, then you need to add some effort to your scoping plan.

| Develop Evaluation (Levels 1, 3 & 4) Instruments | (Note: Level 2 included in Design&Development ratio) | | |
|---|---|---|---|
| Level 1 | Days of Effort | | |
| Level 3 | Days of Effort | 2 | |
| Level 4 | Days of Effort | | |
| | | Total | 2.00 |

Continuing with our example you plan to use an existing Level 1 survey so no additional effort is required, but you do want to ensure there is a formal evaluation of job performance. To support this goal you identify two additional days of effort to develop a performance observation check list.

## Summarize Design and Development Level of Effort

You are probably getting the idea that when we say there is some science to scoping we are promoting the idea of capturing your design choices in as much details as possible and recording that detail in a spreadsheet so the data is accessible to reference for future scoping requirements. The scoping for the example we have been using indicates you need to plan 36 days (33.5 + 2 and rounded up to 36) for design, development and evaluation.

| | | | | Enter specific values to overide defaults | Guideline Ratios |
|---|---|---|---|---|---|
| Course Length (days) | 1.00 | Leader-Led-Sophi | Develop. Ratio | | 30 |
| | | SDL - eLearning - I | Develop. Ratio | | 50 |
| | | On-the-Job | Develop. Ratio | | 25 |
| | | SME Requirement | (% of Develop.) | 0% | |
| Analysis, Design & Development | | | | | |
| | % of Training Time | Training Days | | SME Effort | Developer Effort |
| | 70.0% | 0.70 | Leader-Led-Sophisti | - | 21.00 |
| | 20.0% | 0.20 | SDL - eLearning - Le | - | 10.00 |
| | 10% | 0.10 | On-the-Job | - | 2.50 |
| | | | | Total | 33.50 |
| Develop Evaluation (Levels 1, 3 & 4) Instruments | | | (Note: Level 2 included in Design&Development ratio) | | |
| | Level 1 | | Days of Effort | | |
| | Level 3 | | Days of Effort | 2 | |
| | Level 4 | | Days of Effort | | |
| | | | | Total | 2.00 |
| Number of Pilots | | | | | 0 |
| | | | Total Development Project Work Days | | 36 |

In the final part of this series, using our estimates of effort for design, development and evaluation we are going to develop a draft project plan.

## Part 5 – Project Plan

So far in our sample project, we have determined the program duration, selected instructional strategies, finalized development ratios and allocated the required effort for each strategy. There are three factors left that will influence the scope of the learning solution.

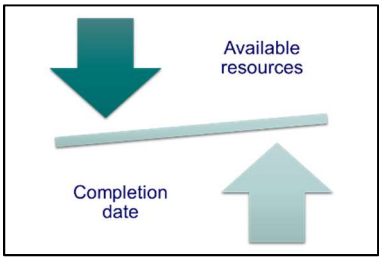
### 1. Indicate the Number of Pilots

The first of these items is the number of pilots to conduct. In our instructional design methodology the pilots are part of the implementation phase but we want to include them in the design scope so they are included in the project plan timeframe. The 'Science' of scoping indicates you should plan to conduct pilots. The 'Art' is to determine how many pilots to conduct. We believe you should conduct a minimum of two pilots required. The logic behind this suggests that if the first pilot identifies some changes, a second pilot is required to confirm those changes had the desired impact on the learning.

| | | | | Enter specific values to overide defaults | Guideline Ratios |
|---|---|---|---|---|---|
| Course Length (days) | 1.00 | Leader-Led-Sophi | Develop. Ratio | | 30 |
| | | SDL - eLearning - I | Develop. Ratio | | 50 |
| | | On-the-Job | Develop. Ratio | | 25 |
| | | SME Requirement (% of Develop.) | | 0% | |
| Analysis, Design & Development | | | | | |
| | % of Training Time | Training Days | | SME Effort | Developer Effort |
| | 70.0% | 0.70 | Leader-Led-Sophisti | - | 21.00 |
| | 20.0% | 0.20 | SDL - eLearning - Lev | - | 10.00 |
| | 10% | 0.10 | On-the-Job | - | 2.50 |
| | | | | Total | 33.50 |
| Develop Evaluation (Levels 1, 3 & 4) Instruments | | | (Note: Level 2 included in Design&Development ratio) | | |
| | Level 1 | | Days of Effort | | |
| | Level 3 | | Days of Effort | 2 | |
| | Level 4 | | Days of Effort | | |
| | | | | Total | 2.00 |
| Number of Pilots | | | | 2 | 4 |
| | | | Total Development Project Work Days | | 40 |

Returning to the example we have been using, including two pilots adds four days of effort, to cover delivery and revisions, bringing the total design and development effort to 40 days.

### 2. Estimate Project Management Requirements and Contingencies




The last item required to complete the scoping is the assignment of effort to manage the project and provide some contingencies. From our experience the planning or the work load for a development project is always being driven by the trade-off that is made between the desired completion date and the resources available.

To apply a scientific framework to this balancing act we use some lesser known functions in Excel to calculate the size of the development team required to complete the work within a specific timeframe. The 'art' comes from experience that indicates you cannot just keep adding resources to shorten the development window.

It is common practice to estimate the project management effort as a percent of the total development effort. The Performance Management Institute (PMI) suggests the basic project management rates run in the range of 7-11%. To add in some contingencies for the plan FKA starts with a 15% project management planning rate – this would add six days of effort to our example project. Experience has taught us that not all projects are the equal: some are smaller, some larger, some have lower risks and some have higher.

| Project Management/Contingencies | | Default planning rate | | 15% | |
|---|---|---|---|---|---|
| | Project Size | Small | Medium | Large | |
| Degree of risk | Low | ☐ | ☐ | ☐ | |
| | Medium | ☐ | ☑ | ☐ | |
| | High | ☐ | ☐ | ☐ | |
| | | Project Management/Contingencies Effort | | | 6 |

A small project with a low degree of risk can reduce the default project planning rate down to 5% and allocate two days of effort.

| Project Management/Contingencies | | Default planning rate | | 15% | |
|---|---|---|---|---|---|
| | Project Size | Small | Medium | Large | |
| Degree of risk | Low | ☑ | ☐ | ☐ | |
| | Medium | ☐ | ☐ | ☐ | |
| | High | ☐ | ☐ | ☐ | |
| | | Project Management/Contingencies Effort | | | 2 |

A larger project with a higher degree of risk sets the project planning rate up to 25% and allocates 10 days of effort.

| Project Management/Contingencies | | Default planning rate | | 15% | |
|---|---|---|---|---|---|
| | Project Size | Small | Medium | Large | |
| Degree of risk | Low | ☐ | ☐ | ☐ | |
| | Medium | ☐ | ☐ | ☐ | |
| | High | ☐ | ☐ | ☑ | |
| | | Project Management/Contingencies Effort | | | 10 |

Making these judgments on the degree of risk is the 'Art' component of project planning. The best way to develop your skill in this area is to record your choices (or assumptions) then do a post-project review and update these planning rates to reflect your experience.

### 3. Determine Development Team Size

The final step in project planning is to determine how many people are needed on the project team. We said it is always a trade off between time and resources. If the project is driven by the completion date (e.g., "We go live in 2 months!") then the resource team size must increase to get the work done in that period. On the other hand, if there is only one person to work on the project then the course will be ready in five months. As mentioned earlier, Excel has a function that we have used to help us make this trade-off between time and resources. The function, NETWORKDAYS, calculates the number of available work days between two calendar dates but does account for recognized holidays* when people are not available to work. Holidays extend the development window and impact the end date.

| Project Management/Contingencies | | Default planning rate | | 15% | |
|---|---|---|---|---|---|
| | Project Size | Small | Medium | Large | |
| Degree of risk | Low | ☐ | ☐ | ☐ | |
| | Medium | ☐ | ☐ | ☐ | |
| | High | ☐ | ☐ | ☑ | |
| | | Project Management/Contingencies Effort | | | 10 |
| | | Total Project Design & Development Work Days | | | 50 |
| | | | | Team Requirement | |
| Start Date | Completion Date | Work Days | Scheduling Efficiency | Design&Developmen | PM |
| 7/15/2017 | 8/15/2017 | 22.00 | 75% | 2.40 | 0.50 |

When this feature is used to record assumptions for our sample project, where the client said it had to be ready in a month, a team of three people would be required to complete the work. On the other hand, if there is only one resource available it is going to take 3.5 months.

| | | | | Team Requirement | |
|---|---|---|---|---|---|
| Start Date | Completion Date | Work Days | Scheduling Efficiency | Design&Developmen | PM |
| 7/15/2017 | 10/30/2017 | 74.00 | 75% | 0.80 | 0.20 |

A little negotiation with the project sponsor could result in a comprise. You could: (1) assign two people to the project, and (2) authorize overtime. As a result, the work would be completed in two months. The overtime decision is represented in the spreadsheet by setting the scheduling factor to 120%.

| Start Date | Completion Date | Work Days | Scheduling Efficiency | Design&Developmen | PM |
|---|---|---|---|---|---|
| 7/15/2017 | 9/15/2017 | 44.00 | 120% | 0.80 | 0.30 |

*There is a handy reference site to help you keep track of holidays, https://www.timeanddate.com/calendar/. You select the year and the country and it provides a table of all holiday dates.

## Wrapping Up This Series

In the first part of this series we posed a question, “Scoping a learning solution…is it an art or is there some science involved?” In each of the steps in the process we have acknowledged that the ‘Art’ is the judgements required as you make your scoping decisions. The only way to develop your artful skills is to practice scoping a variety of projects and taking the time to learn from each project. The ‘Science’ comes from following a detailed step-by-step scoping process and recording each decision and judgement you make, and possibly adjusting your calculations if your experience suggests you should.