

Appendix E - Simulation Design Check Lists

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Introduction

This appendix consists of worksheets that help define needs, simulation specification, design metrics and a simulation session checklist.

Simulation Worksheet - Needs Definition

Project Name		Date	
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This worksheet helps define client and learner needs and constraints as the first step in selecting an existing simulation or designing a new simulation. It involves specifying:

- a. **Specifying the Target Audience(s)**
- b. **Settling Duration**
- c. **Defining Development Objectives**
- d. **Defining Manner of Use**

Details <http://www.simulations.co.uk/DESIGN09.HTM#reference15>

Specifying the Target Audience(s)

This involves defining who will participate in the simulation, who will run it and the type of organization that will use it and authorize & fund its use.

Organization help define the organizations involved with the project and the needs other than learning for the organization.

Learners' Organization			
Lead Contact Name			
Position			
Address			
Phone		E-mail	

Training Organization			
Lead Contact Name			
Position			
Address			
Phone		E-mail	

Funding Organization			
Lead Contact Name			
Position			
Address			
Phone		E-mail	

Design Organization			
Lead Contact Name			
Position			
Address			
Phone		E-mail	

Other Contacts			
Name			
Phone		E-mail	
Name			
Phone		E-mail	
Name			
Phone		E-mail	
Name			
Phone		E-mail	

Organizational Needs

Participants

These affect the simulation in terms of prior knowledge and experience, the diversity of these and the maturity of the participants. If the simulation is to be used by several disparate groups, data should be entered for each.

Group #		Description				
Age Range		Mgmt. Level				
		None	Some	Average	High	
Business Knowledge						
Business Experience						
		Finance	Marketing	Operations	Engineering	
Functional Diversity					H.R.	

Group #	Description				
Age Range	Mgmt. Level				
	None	Some	Average	High	
Business Knowledge					
Business Experience					
	Finance	Marketing	Operations	Engineering	H.R.
Functional Diversity					

Group #	Description				
Age Range	Mgmt. Level				
	None	Some	Average	High	
Business Knowledge					
Business Experience					
	Finance	Marketing	Operations	Engineering	H.R.
Functional Diversity					

Group #	Description				
Age Range	Mgmt. Level				
	None	Some	Average	High	
Business Knowledge					
Business Experience					
	Finance	Marketing	Operations	Engineering	H.R.
Functional Diversity					

Age Range and Management Level are indicative of maturity. Business Knowledge and Experience help define simulation scope and complexity and learning support needs.

Tutors

These affect the simulation depending on their training; simulation use and computer use experience and subject matter (business) knowledge.

Simulation to be run by client (Yes or No)				
If Yes ?	None	Some	Average	High
Training Experience				
Simulation Use Experience				
Computer Use Experience				
Business Knowledge				

Where the simulation is to be run by the client (training provider or training staff) the Training, Simulation Use & Computer Use Experience and Business Knowledge sections of the form should be completed and depending on the responses training may be needed or for a new simulation a training course developed.

Settling Duration

This involves defining the amount of time that can be budget to the simulation.

Desired Duration		Maximum Duration	
Duration Issues			

The desired duration is the ideal time in hours to be budgeted to the simulation. Maximum duration is the absolute maximum time that can be budgeted to the duration. Duration limits the scope and complexity of the simulation. The duration issues section allows possible mismatches between duration and simulation scope and complexity to be noted.

Defining Development Objectives

This involves defining the development objectives to be addressed by the simulation as follows:

- I. **Knowledge Exploration**
- II. **Skill Development & Practice**
- III. **Motivation/Behavioral Needs**
- IV. **Assessment**
- V. **Enhancing Learning**

The columns none/basic/intermediate/high indicate level and if the course column is ticked this indicates need to integrate with course material.

Knowledge Exploration	None	Basic	Intermediate	High	Course
Financial					
Marketing					
Sales					
Operations					
General Management					
Strategic Management					
Management Techniques					

Skill Development & Practice	None	Basic	Intermediate	High	Course
Decision-Making					
Analysis & Diagnosis					
Problem Solving					
Uncertainty & Ambiguity					
Team Working					
Negotiating & Promoting					
Business Presentation					

Motivation/Behavioral Needs	None	Basic	Intermediate	High	Course
Encourage Competition					
Breakdown Inhibitions					
Involve					
Engender Excitement					
Change Pace					
Emphasize Profit					
Focus on Results					
Team Building					
Build Relationships					
Fulfill Adult Learning					

Assessment	None	Basic	Intermediate	High	Course
Self Assessment					
Informal Assessment					
Formal Assessment					
Prior Learning					
Individual Needs					
Remedial Learning					
Course Improvement					
Future Learning Needs					

Enhancing Learning	None	Basic	Intermediate	High	Course
Integrate with Course					
Integrate Prior Learning					
Assimilate Knowledge					
Test Understanding					
Review & Reinforce					
Link Theory & Practice					
Active Learning					
Clinical Practice					

Simulation Worksheet - Specification

Project Name		Date	
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This worksheet helps specify the simulation in terms of simulator type, hardware needs and the business situation to model.

- a. **Business Scenario**
- b. **Business Issues to address**
- c. **Simulator Type**
- d. **Delivery Mode**
- e. **Version(s)**

Business Scenario

This details the business scenario to be modelled and any special features associated with it.

Business Issues to address

These are issues that must be explored by the simulation and link to the development needs.

Simulator Type

This involves deciding business and structural aspects of the simulation and from this the appropriate simulation shell.

Total Enterprise Simulations

- Appreciation
- Strategy
- Tactical
- Totality

Functional Simulations

Concepts Simulations

Planning Simulations

Process Simulations

Computer Enhanced Role-plays

Other

- Teams run whole business
- business appreciation/acumen (specialists & management)
- strategy development (middle/senior mgt)
- detailed management (junior/middle mgt)
- academic programmes
- individual functional area (e.g. Sales, Manufacturing)
- short 2 - 4 hours focused on a business concept
- preparing a plan rather than running a business
- exploring a business process (e.g. forecasting or bidding)
- e.g. sales negotiation
- special design not described above

Links to examples on <http://www.simulations.co.uk/RANGEFLY.HTM>

Delivery Mode

This defines the hardware and platforms for the delivery and tend to link to manner of use and may be pre-defined by the simulator type.

Direct Use

One computer and printer/team

Tutor Mediated

Single computer and printer for group of up to eight teams

Decision Support

One computer and printer/team + master computer

Further on Direct Use Simulations <http://www.simulations.co.uk/direct.htm>

Further on Tutor Mediated Simulations <http://www.simulations.co.uk/mediate.htm>

Further on Decision Support Simulations <http://www.simulations.co.uk/DSS.htm>

Version(s)

This defines the versions required for the basic simulation to address different needs (typically participants and manner of use). For further information about simulation versions see <http://www.simulations.co.uk/DESIGN05.HTM>

#	Group	Name	Description
1			
2			
3			
4			
5			

Simulation Worksheet - Design Metrics

Project Name		Date	
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This worksheet specifies a new simulation in terms of design complexity and novelty. It is provided to help Jeremy Hall estimate development work.

Design Area		Design Time
Complexity (Duration)		
Duration Issues		
Participant Support Need		
Tutor Support Need		
Train the Trainer Need		
Manner of Use		
Scenario Novelty		
Issue Novelty		
Simulator Type Novelty		
Delivery Mode Issues		
Versions Need		

Complexity (Duration) is the basic impact on design time.

Duration Issues take into account the situation where there is a conflict between the desired duration and the duration indicated by the definition of needs. Where, for example, the definition of needs (development needs and participant) suggest that the duration should be longer than required. A situation that is likely to involve additional modelling and thought.

Participant Support Need takes into account the participants' prior learning (knowledge and experience) and the diversity of this. So, for Direct Use and Decision Support simulations it defines the extent of the on-line help and advice system and additional readings.

Tutor Support Need takes into account the business knowledge of the tutor running the simulation and hence whether the standard on-line help needs to be extended.

Train the Trainer Need takes into account whether a train the trainer session is required.

Manner of Use takes into account the manner of use and specifically the need for extended team commentaries.

Scenario Novelty takes into account the specific industrial structure and the degree of its' novelty. In particular it helps define whether simulation models exist in the library and the extent of calibration

Issue Novelty takes into account the specific issues that must be addressed and hence defines whether the decisions and reports needed to explore the issues exist in other simulations.

Simulator Type Novelty takes into account whether the simulation can be handled by existing shells and engines or whether new shells must be developed.

Delivery Mode Issues takes into account special delivery mode issues.

Versions Need defines whether the decisions, models, results and databases must be extended to handle the desired versions.

Simulation Session Check List

This checklist is designed to help with the design of a session involving the use of a simulation and record its achievement.

Course Details

Tutor		
Course Title		
Course Description		
Course Dates from		to

Participants (describe in terms of management level, prior learning, age etc.)	
Simulation Duration	Hours/days
Simulation relative to the course (describe where and why the simulation is being used on the course)	

Development Focus

Describe the main focus of the session and the course using the five dimensional model. Rank each from zero (not a consideration) to five (the key focus).

	course	session
Knowledge Exploration		
Skills Practice and Development		
Enhancing Learning		
Motivation		
Assessment		

Knowledge Exploration

Describe the knowledge to be explored - tick the best descriptions or add need

	course	session
Strategic Management		
Tactical Management		
Business Appreciation		
Marketing Management		
Marketing Appreciation		
Financial Management		
Financial Appreciation		
Operations Management		
Illustration of Techniques		
Illustration of Concepts		
Other		

Skills Practice & Development

Describe the knowledge to be explored - tick the best descriptions or add need.

	course	session
Analysis & Diagnosis		
Decision Making		
Problem Solving		
Handling Ambiguity		
Handling Uncertainty		
Managing Dynamics		
Team Working		
Business Presentation		
Negotiation		
Numeracy		
Other		

Enhancing Learning

Describe the knowledge to be explored - tick the best descriptions or add need.

	course	session
Integrating with Prior Knowledge		
Integrating Course		
Assimilating Knowledge		
Testing Understanding		
Revise, Review and Reinforce		
Link Theory with Practice		
Active Learning		
Clinical Practice		
Other		

Motivating Participants

Describe the knowledge to be explored - tick the best descriptions or add)

	course	session
Encourage Competition		
Break Down Inhibitions		
Involve		
Engender Excitement		
Change Pace		
Emphasise Profit		
Focus on Results		
Team Building		
Build Relationships		
Fulfil Adult Learning		
Other		

Assessing Participants

Describe the knowledge to be explored - tick the best descriptions or add)

	course	session
Self Assessment		
Informal Assessment		
Formal Assessment		
Assess Course Needs		
Assess Prior Learning		
Assess Individual Delegate Needs		
Assess Remedial Needs		
Other		