This guide has been based on the outcomes of an action research study conducted between 2005 and 2007 on the Australian property and construction industry. The research was carried out by the Supply Chain Sustainability Project team for the Cooperative Research Centre for *Construction Innovation*. The research was aimed at improving the economic, social and environmental sustainability of the pre-cast concrete and resource recovery supply chains through the development, trial and evaluation of an innovative supply chain management strategy.

This guide presents strategies and actions for government sector clients responsible for capital infrastructure seeking to implement supply chain management ideas.

Best Practice Guideline for Government Supply Chain Management

CRC AUSTRALIA

CRC Construction Innovation
BUILDING OUR FUTURE

1. Supply Chain Management

The construction supply chain is composed of firms involved in upstream and downstream contractual relationships, who deliver a commodity (product and/or service) on projects. The supply chain, once formed, creates a flow of commodities, cash and information.
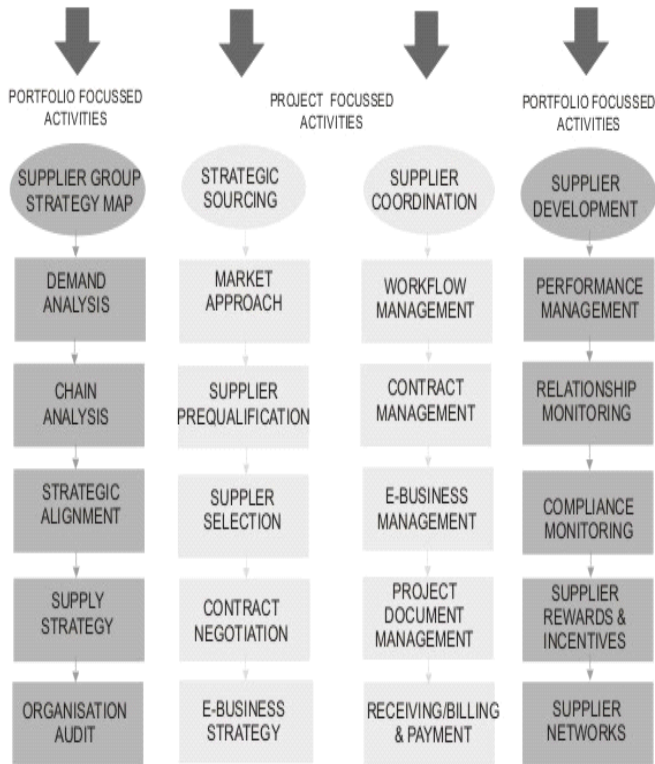

Source: London, 2007
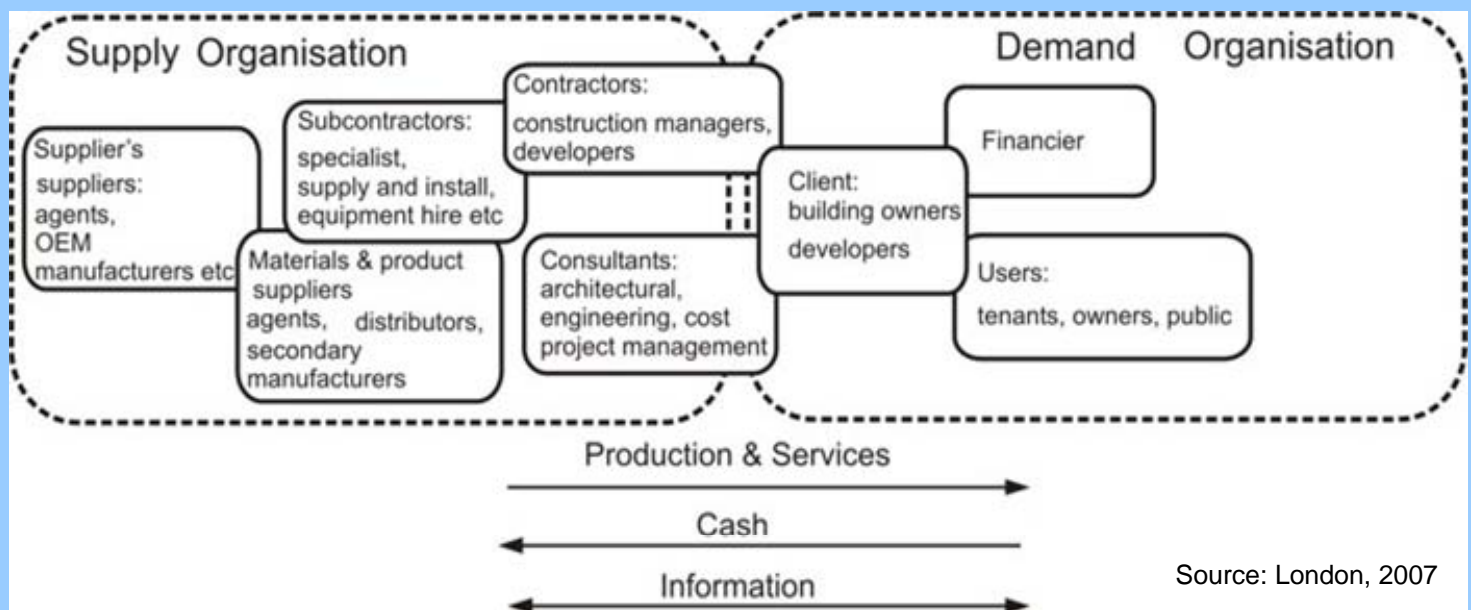
"The creation of the supply chain is impacted upon by the location of the individual firm within its market, which has unique economic structural and behavioural characteristics. The upstream and downstream linkages are affected by the nature of these markets. Linkages are also affected by the countervailing power relationships, which occur between the customer and supplier markets at different tiers in the chain" (London, 2004; 2007)

2. Supplier Group Strategy Map

SUPPLY CHAIN MANAGEMENT BLUEPRINT SERVICES PLATFORM - CLIENT ORGANISATIONS ROADMAP FOR EXECUTION

SUPPLY CHAIN MANAGEMENT FOR PROJECT BASED INDUSTRIES: PORTFOLIO & PROJECT PROCUREMENT ACTIVITIES FRAMEWORK

PORTFOLIO FOCUSSED ACTIVITIES	PROJECT FOCUSSED ACTIVITIES	PORTFOLIO FOCUSSED ACTIVITIES	PORTFOLIO FOCUSSED ACTIVITIES
SUPPLIER GROUP STRATEGY MAP	STRATEGIC SOURCING	SUPPLIER COORDINATION	SUPPLIER DEVELOPMENT
DEMAND ANALYSIS	MARKET APPROACH	WORKFLOW MANAGEMENT	PERFORMANCE MANAGEMENT
CHAIN ANALYSIS	SUPPLIER PREQUALIFICATION	CONTRACT MANAGEMENT	RELATIONSHIP MONITORING
STRATEGIC ALIGNMENT	SUPPLER SELECTION	E-BUSINESS MANAGEMENT	COMPLIANCE MONITORING
SUPPLY STRATEGY	CONTRACT NEGOTIATION	PROJECT DOCUMENT MANAGEMENT	SUPPLIER REWARDS & INCENTIVES
ORGANISATION AUDIT	E-BUSINESS STRATEGY	RECEIVING/BILLING & PAYMENT	SUPPLIER NETWORKS

Developed by Kerry London

Public sector clients and/or policymakers have the opportunity to change the structural and behavioural characteristics of the construction supply chain to achieve the following:

● increase efficiencies and productivity

● achieve government strategic objectives

● expand new markets

● reduce wasted government resources

● improve product quality

The Supply Chain Management Blueprint represents a holistic integrated framework. The first step is to understand the economics of the supply chain through a Supplier Group Strategy Map. The research carried out by the Supply Chain Sustainability Project team was concerned with the development of a "Supplier Group Strategy Map" for the pre-cast concrete and resource recovery supply chains.

The development of a Supplier Group Strategy Map will result from five key activities; demand analysis, chain analysis, strategic alignment, organisational audit and supplier strategies.

The following checklists and activities have been designed to assist government agencies understand, develop and implement supply chain ideas and actions. More specifically, the checklists will help you to:

● assess your agency's uptake of supply chain related policies

● assess your readiness in relation to developing a Supplier Group Strategy Map

● develop supply strategies based upon chain alignment and organisational capacity

Checklist 1: Assessing current uptake of supply chain related policy

	Level 1 We haven't thought about it	Level 2 We're in the process of exploring this	Level 3 Yes	Level 4 Yes, and we're constantly doing this	Level 5 Yes, and we represent best practice
1. Can you identify any policies which are going to assist you to develop a Supplier Group Strategy Map?					
2. Have the policy(ies) been implemented by your agency?					

There are a range of policies that can relate to the supply chain approach including e-business, procurement, sustainable development, contractor/consultant management, information management policies, etc.

If you have not identified the relevant policies then it is perhaps worthwhile to begin identifying policies which are going to assist the development of a Supplier Group Strategy Map.

If you have already identified the relevant policies but are having some difficulties with implementation, the following checklists are aimed at assisting you to develop the Supplier Group Strategy Map. You may revisit these policy(ies) after you've developed the Supplier Group Strategy Map.

Checklist 2: Assessing current readiness in relation to the development of a supplier group strategy map

	Level 1 We haven't thought about it	Level 2 We're in the process of exploring this	Level 3 Yes	Level 4 Yes, and we're constantly doing this	Level 5 Yes, and we represent best practice
1. Do you understand your agency's expenditure and policy that impacts upon the supply chains?					
2. Do you understand the economics of the supply chains?					
3. Do you know where there is an alignment of objectives between your agency and the key players in the supply chains?					
4. Can you assess your organisational capacity?					
5. Do you develop specific supply strategies based upon chain alignment of objectives and organisational capacity?					

3. Demand analysis

Q1: Do you understand your agency's expenditure and policy that impacts upon the supply chains?

1.1: General trend of agency's spend on the sector & impact upon the supply chains

The following two activities are aimed at mapping your agency's general expenditure on the sector.

Have you thought about how this impacts the supply chains in the markets?

Can you map your purchasing history and future portfolio and future expenditure?

What happens to the quality of products/services when there is high competition?

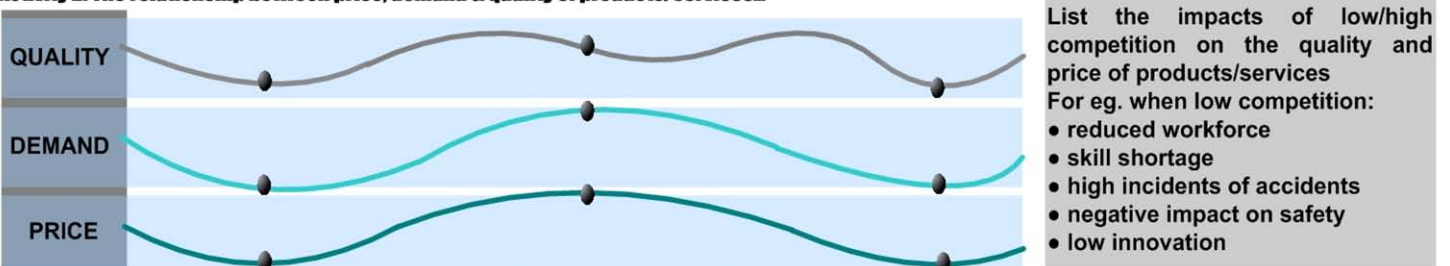What happens then when there is low competition?

Are there any other consequences emerging as a result of low competition?

What are the relationships between price, competition and quality?

Activity 1: General trend of agency's spend on the sector...

Expenditure ($) — 1975, 1985, 1995, 2005

HIGHS: List Innovation event(s)
List issues arising from high demand
•
•

LOWS: List reason for low competition
List issues arising from lack of demand
•
•

Activity 2: The relationship between price, demand & quality of products/services...

QUALITY
DEMAND
PRICE

List the impacts of low/high competition on the quality and price of products/services
For eg. when low competition:
• reduced workforce
• skill shortage
• high incidents of accidents
• negative impact on safety
• low innovation

1.2: Agency and other clients imprint on the sector

The following two activities are aimed at identifying your agency as well as the other key clients' imprint on the sector.

How significant are you as a client to these suppliers?

Do you know your what your agency's market share is of the sector?

Who are the other clients and do you know the suppliers' percentage of sales attributed to these different clients?

Activity 1: Key players imprint on the sector...

Players	Product type/use	Demand
List agency	List product/service use	X%
List other players	List product/service use	Y%
List other players	List product/service use	Z%
etc	etc	etc%

Activity 2: Key clients of suppliers

Players	Org. 1	Org. 2	Org. 3	Org. 4	Org. 5	Org. 6
List agency (direct)	X%			etc%		
List client	Y%	etc%	etc%	etc%	etc%	etc%
List client	-	etc%	etc%		etc%	etc%
List client	-			etc%		
List agency: in total (direct & indirect)	Z%	etc%	etc%	etc%	etc%	etc%

1.3: Risk vs expenditure

The following three activities are aimed at assessing the level of expenditure and the risks associated with the different suppliers.

Can you identify your major procurement categories and your relative spend?

Can you identify your most critical items?

How significant is the performance of the sector to your agency?

Purchasing volume is just one aspect of the equation and levels of risks need to be assessed as well.

What are the risks associated with the sector and in particular with the performance of the different suppliers?

Can you position the suppliers within the different categories based upon a mapping of risk vs expenditure?
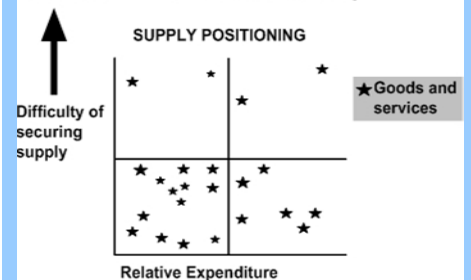
Can you identify the financial and technical risks?

Does the level of risk change at the various stages of the lifecycle of the asset??
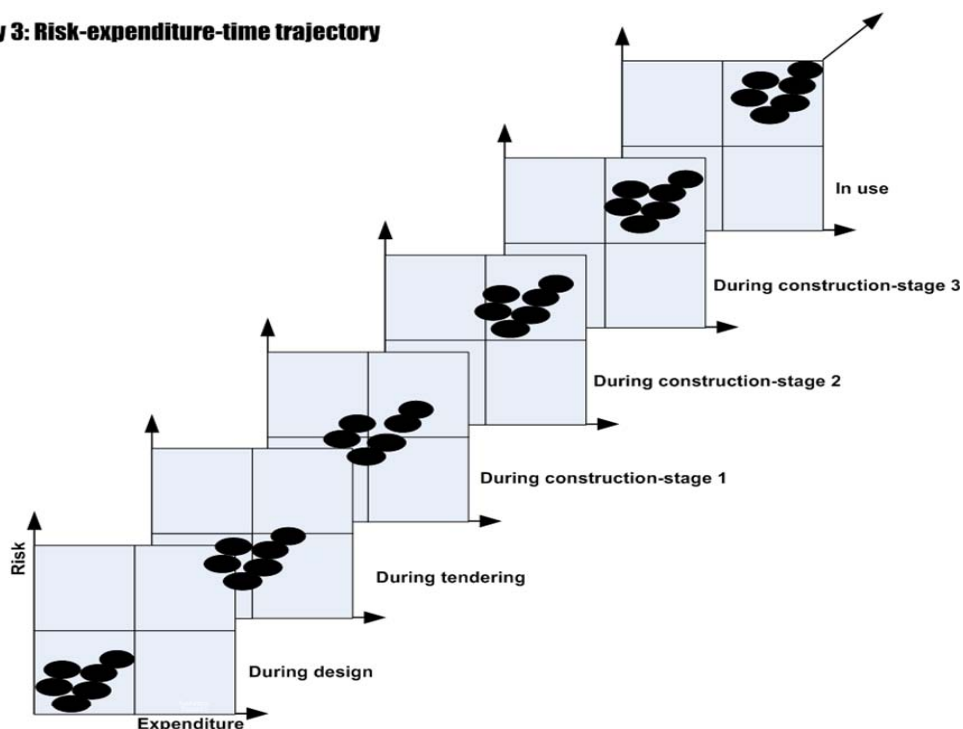
Activity 1: Relative spend on critical items
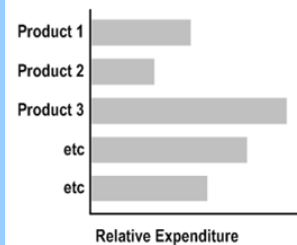
Activity 2: Supply Positioning

Activity 3: Risk-expenditure-time trajectory

4. Chain analysis

Q2: Do you understand the economics of the supply chains?

2.1: A timeline that maps the key events in the sector

The following activity is aimed at constructing the history of the sector.

Are you able to recount stories in relation to the sector?

What have been some of the key events?

What are the problems and successes?

Activity 1: A timeline that maps the key events related to the pre cast concrete sector...

Themes	1975	1985	1995	2005
List theme	List key quotes from "stories" as revealed by key players within supply chain	List key events	List key quotes from "stories" as revealed by key players within supply chain etc	etc
List theme			List key events: Insert key quotes	List key events: Insert key quotes
etc		etc	etc	etc
etc			etc	etc
etc			etc	etc

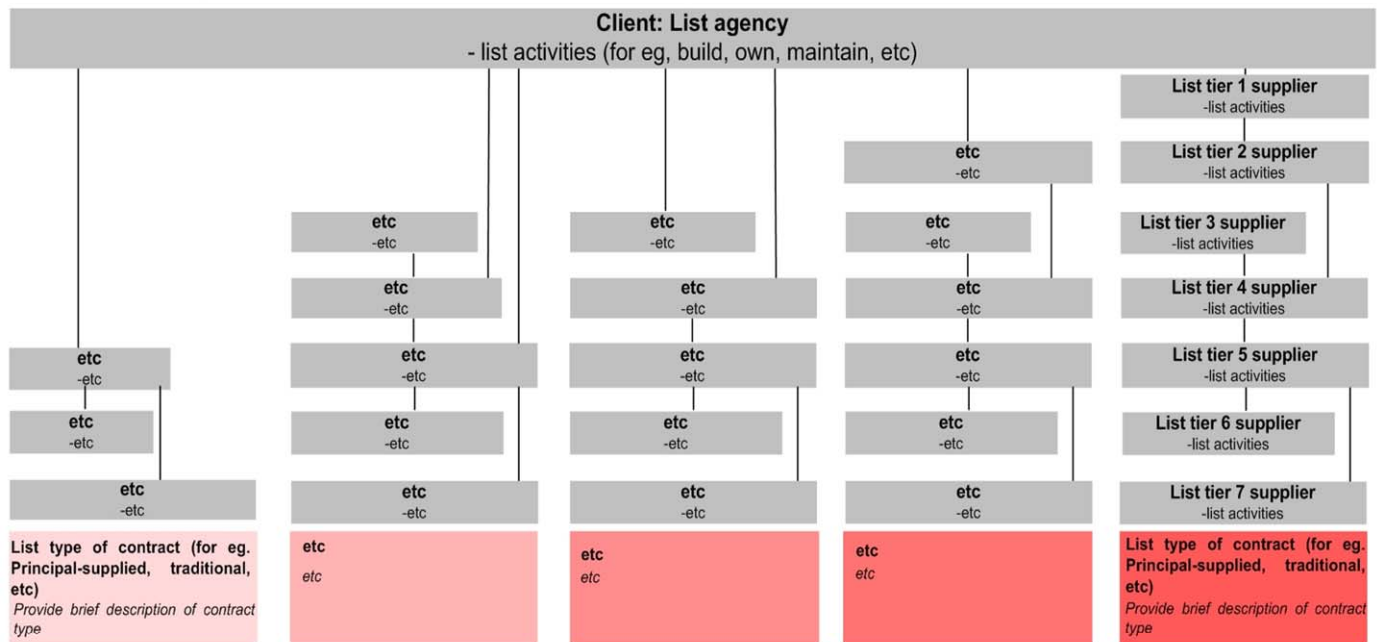### 2.2: Industrial organisation of the supply chain

The following activity is aimed at mapping the industrial organisation of the supply chains.

Who are the players and how are they organised?

What is the current product flow?

Can you identify your agency's position within the chains?

Activity 1: Industrial organisation of the supply chain...

Client: List agency
- list activities (for eg, build, own, maintain, etc)

				List tier 1 supplier -list activities
			etc -etc	List tier 2 supplier -list activities
	etc -etc	etc -etc	etc -etc	List tier 3 supplier -list activities
	etc -etc	etc -etc	etc -etc	List tier 4 supplier -list activities
etc -etc	etc -etc	etc -etc	etc -etc	List tier 5 supplier -list activities
etc -etc	etc -etc	etc -etc	etc -etc	List tier 6 supplier -list activities
etc -etc	etc -etc	etc -etc	etc -etc	List tier 7 supplier -list activities
List type of contract (for eg. Principal-supplied, traditional, etc) *Provide brief description of contract type*	etc *etc*	etc *etc*	etc *etc*	List type of contract (for eg. Principal-supplied, traditional, etc) *Provide brief description of contract type*

5. Strategic alignment

Q3: Do you know where there is an alignment of objectives between your agency and the key players in the supply chains?

The following two activities are aimed at identifying objectives of your agency and the key industry players in the supply chains.

Do you know what your agency and the industry see as the key problems in relation to the supply chains?

Can you identify the extent of the problems from both perspectives, ie high-medium-low?

What is it that your agency and the industry want to achieve in relation to the sector?

Is there an alignment in what your agency and the industry see as the key problems and what your objectives are?

What are some of the potential strategies to address these issues towards achieving the objectives?

Activity 1: Key problems related to the sector

KEY PROBLEMS	Industry/Supplier perspective	Government agency/Client perspective
LIST PROBLEM	• **Describe nature of problem** *Insert key quotes as revealed by suppliers*	• **Describe nature of problem** *Insert key quotes as revealed by agency*
LIST PROBLEM	• **Describe nature of problem** *Insert key quotes as revealed by suppliers*	• **Describe nature of problem** *Insert key quotes as revealed by agency*
etc	etc	etc
etc	etc	etc
etc	etc	etc

■ HIGH	■ MEDIUM	■ LOW

Activity 2: Developing ideas to achieve objectives...

KEY PROBLEMS	Government/Client perspective	Industry/Supplier perspective	Key ideas for development of strategies
List problem	List extent of problem, ie High, Medium, Low	List extent of problem, ie High, Medium, Low	List key ideas for development of strategies for change in relation to problem • •
List problem	List extent of problem, ie High, Medium, Low	List extent of problem, ie High, Medium, Low	List key ideas for development of strategies for change in relation to problem • •
etc	etc	etc	
etc	etc	etc	

6. Enabling Supply Chains

## Q4: Can you assess your organisational capacity?

The development of specific supply strategies is based upon chain alignment of objectives and is linked to organisational capacity. Effective management of supply chains involves collaborations with many key players both internal and external to your agency. A key to enabling supply chains relies upon more than one organisation working towards change. It is therefore important to identify where your agency's strength lies in terms of your relationships with other key players.

The following activity is aimed at identifying the roles and relationships of the key players within the supply chain.

Can you identify who are the key players are?

What roles do these players have and how are they related?

Activity 1: Roles & Relationships: key players in enabling supply chain
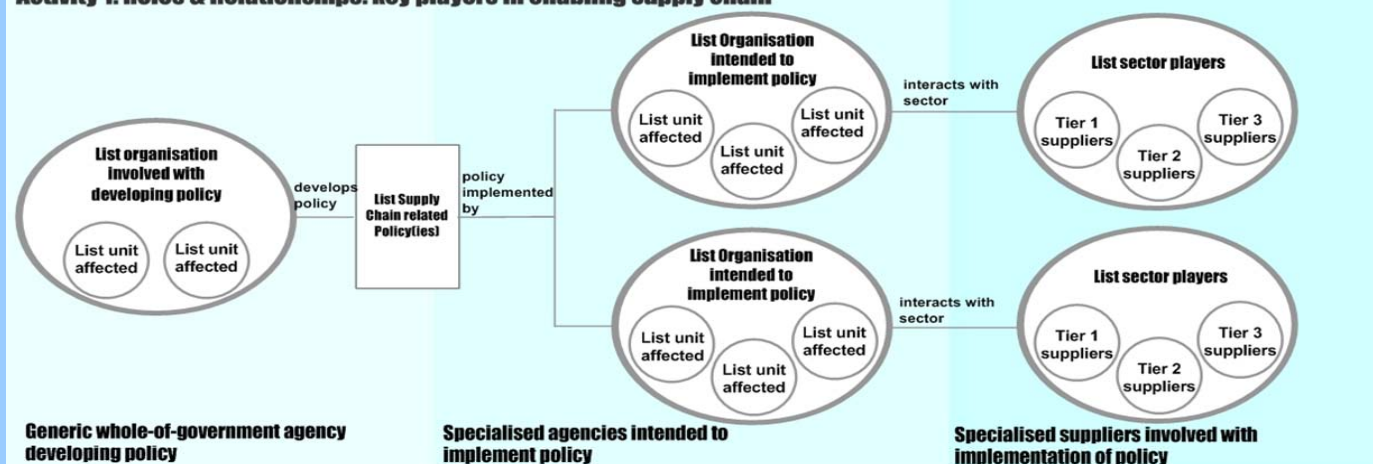
The next stage after you've mapped the roles and relationships of the key players is to identify where your strengths and capabilities lie in terms of your internal and external relationships with the key players in the supply chains. External relationships include the links you have with external suppliers. Internal relationships include the links you have with other units within your organisation as well as other stakeholder government agencies.

The following activity is aimed at assessing the nature of your relationship with the external industry suppliers.

Do you have a good working relationship with the suppliers?

How do you currently communicate with the suppliers?

Is there a clear communication path?

Is an ad-hoc approach undertaken?

Is there an industry association representing the external suppliers that you can communicate with?

Does your agency have an integrated interface that communicates with the external suppliers?

Activity: Assessing external relationship strengths and capabilities

Example 1: Low capacity external relationships, high capacity internal relationships
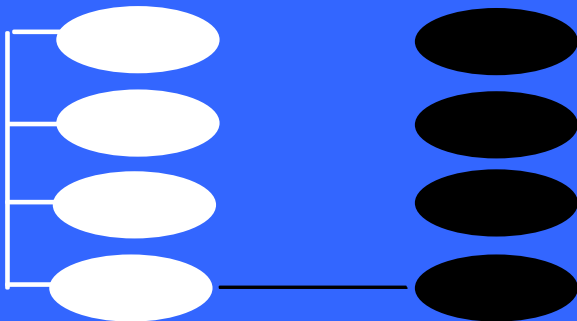
Example 2: High capacity external relationships, low capacity internal relationships
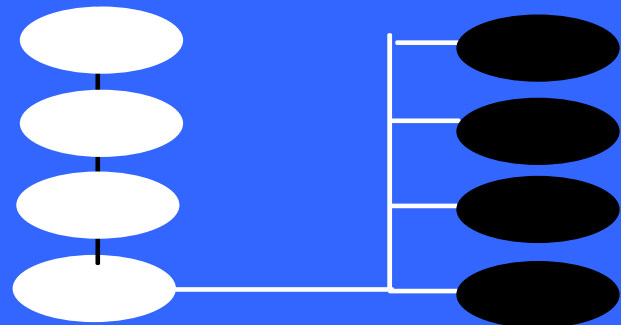
Legend

| ——— Strong relationships | ——— Ad-hoc/weak relationship | ⬛ External suppliers | ⬜ Internal stakeholder government agency/unit |

The next stage after you've assessed your external supplier relationships involves identifying your strengths and capabilities in relation to your internal relationships. This includes not only the other units within your agency but also units from other stakeholder government agencies who are affected. The following activity is aimed at mapping the skills and capabilities of the various units within the agencies affected to identify the core construction expertise and expertise to contribute towards enabling supply chains.

What are the areas of skills/expertise/knowledge/experience relevant for enabling supply chains?

Which units or agencies have these strengths/capabilities?

You may not be aware of the other units' strengths and capabilities and as such may seek confirmation from these other units in order to complete the skills and capabilities map.

Activity: Assessing internal relationship strengths and capabilities

| Organisation | Unit in Organisation | Role | Skills / expertise / knowledge / experience | | | | |
			Sector-specific operational knowledge	Construction industry operational knowledge	Project Procurement	Construction Policy	Strategic procurement policy
List agency	• List unit within agency	List unit's role	Rate ◐/● /				
	• List unit within agency	List unit's role	Rate ◐/● /				
List agency	• etc	etc					
	• etc	etc					
	• etc	etc					
etc	• etc	etc					
	• etc	etc					
	• etc	etc					
●High ◐Medium ○Low							

7. Taking Supply Chain Actions

Q5: Do you develop specific supply strategies based upon chain alignment of objectives and organisational capacity?

Once you have carried out the four activities in the development of a Supplier Group Strategy Map, the key parties within your agency who are affected need to meet and develop appropriate supply chain "actions". The key areas, which need to be discussed at such a workshop or meeting can include: discussion and confirmation of findings, brainstorming of key ideas for action, and development of an action outline.

The following two tables are examples which can be used to guide the "action" workshop.

The first table is aimed to identify where there is an alignment between industry and government perspective and further to that develop potential "pathways to solution".

The second table is aimed at developing an "action outline", which outlines the initiatives, key actions or steps, timeframes, etc. It also allows for the agency to prioritise and set out realistic timeframes and determine which problems and associated initiatives to progress.

Summary of problems & pathway to solutions

Key Problem	Industry-supplier	Level	Source	Government-client	Level	Source	Pathway to Solution
List problem	Describe nature of problem	Identify extent of problem ● / ⊖ / ○	Identify source of problem ● / ⊖ / ○	Describe nature of problem	Identify extent of problem ● / ⊖ / ○	Identify extent of problem ● / ⊖ / ○	Identify potential solutions based upon synthesis of supplier and client perspectives
List problem	Describe nature of problem	Identify extent of problem ● / ⊖ / ○	Identify source of problem ● / ⊖ / ○	Describe nature of problem	Identify extent of problem ● / ⊖ / ○	Identify extent of problem ● / ⊖ / ○	Identify potential solutions based upon synthesis of supplier and client perspectives
etc	etc	etc	etc	etc	etc	etc	etc
etc	etc	etc	etc	etc	etc	etc	etc

LEGEND:
⊖ : Agency as perceived source of problems   ⊖ : Medium
○ : Industry as perceived source of problem   ○ : Low
● : Client as perceived source of problems   ● : High

Action Outline

Key Problem	Initiatives and key details	Action	Action Aim	Action by whom & when
List problem	List initiative & provide key information	List actions to progress initiative • •	List action aims • •	List by Whom: List by When:
List problem	List initiative & provide key information	List actions to progress initiative • •	List action aims • •	List by Whom: List by When:
etc	etc	etc	etc	etc

LEGEND
▢ Current actions   ▢ Future actions

Partners/general info/etc