The frequency of occurrence of lean supply chain elements in various LSCM frameworks

| Constructs / Elements / Tools | Anand and Kodali | Qi et al | Ducname and Lucansky | Levy | Gonzalez-Benito and Suarez-Benito | Found and Rich | Barla | Lamming | McKee and Ross | Manrodt et al | Wright | Nightingale | Drohomierski and Manica | Holmold | Lean Strategies Group LLC | Hawkey | Blanchard | Taylor | Azevedo et al | Cutcher-Gershenfeld and Bartelli | Stummer | Despres | Poiter | Tommelein et al | Schniederjans | Wu | Towill and McCullen | QAD Inc | Total | Weighage |
|-----------------------------|------------------|---------|-----------------------|------|-----------------------------------|---------------|-------|---------|----------------|----------------|----------------|----------------|----------------------------------|---------|---------------------------------|--------|---------|-------|----------------|-------------------------|----|----------|------|---------------|----------|----|----------------|
| Information sharing with suppliers and 3PL / Information technology supported elements | 6 | 15 | 6 | 3 | 7 | 1.6 | 1 | 5 | 1 | 2 | 1 | 5 | 12 | 4 | 10 | 17 | 56.66 |
| Supplier relationship / Supply chain collaboration | 5 | 3 | 1 | 1 | 2 | 5 | 3 | 2 | 2 | 2 | 4 | 6 | 2 | 5 | 14 | 46.66 |
| Elimination of waste | 6 | 2 | 2 | 7 | 3 | 3 | 2 | 2 | 9 | 1 | 3 | 1 | 4 | 7 | 12 | 17 | 23.33 |
| Pull systems | 4 | 3 | 4 | 2 | 2 | 2 | 3 | 1 | 2 | 3 | 1 | 4 | 2 | 4 | 6 | 20 | 23.33 |
| Supplier integration | | | | | | | | | | | | | | | | | | 7 | 23.33 |
| Just in time / JIT production for customer / Just in time sequencing | 5 | 8 | 2 | 8 | 3 | 4 | 6 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Continuous Improvement | 7 | | | | | | | | | | | | | | | | 5 | 16.66 |
| Demand- based management | 1 | | | | | | | | | | | | | | | | 5 | 16.66 |
| Involved in batch size reduction improvement projects | | | | | | | | | | | | | | | | | 4.6 | 16.66 | 5 | 16.66 |
|                                | 7 | 8 | 1 | 4 | 3 | 5 | 16.66 |
|--------------------------------|---|---|---|---|---|---|--------|
| Just in time distribution      |   |   |   |   |   |   |        |
| Single source and reliable suppliers | 1 | 2 |   |   | 1 | 1 | 6      |
|                                 |   |   |   |   | 4 | 3 | 5      |
| Standard products and processes| 3 | 14| 4 | 3 |   |   | 4      |
| Collaborative relationship     | 6 | 16| 6 |   |   | 11 | 4      |
| Kanban                         | 10| 2 |   |   |   | 5 | 4      |
| Supplier certification, development and diffusion of innovation | 4 |   |   | 5 |   | 9 | 4      |
| Cultural change                | 10| 7 |   |   | 5 |   | 3      |
| Set time reduction             |   |   | 3 | 8 | 3 | 10 |        |
| Flexibility / Flexibility in making different product mixtures | 1 |   |   | 5 | 8 | 3 | 10    |
| Minimal inventory              | 11| 7 | 1 |   | 3 | 10 |        |
| Adaptability /Adoption of industry standards | 4 |   |   | 10| 2 | 6.66|
| Benchmarking                   | 3 |   |   |   | 5 | 2 | 6.66  |
| Build-to-order/Build to Order balanced with Build To Stock |   |   | 4 | 12| 2 | 6.66|
| Competency and responsibility  |   |   |   | 5 |   | 9 | 2      |
| Consignment inventory          | 6 |   |   |   | 6 | 2 | 6.66  |
| Flexible manufacturing         | 2 |   |   |   |   | 6 | 2      |
| Leadership ,commitment and involvement of stakeholders | 9 |   |   |   | 1 | 2 | 6.66  |
| Market sensitivity             | 2 |   |   |   |   | 6 | 2      |
| Selected lean supply chain principles |   |   | 5 | 1 |   |   |        |
| Supplier location              |   |   | 5 |   | 3 | 1 | 6.66  |
| Supply chain management elements | 3 | 5 | 2 | 6.66  
| Synchronize flow | 3 | 5 | 2 | 6.66  
| Total quality management | 3 | 5 | 2 | 6.66  
| Value engineering/Value analysis | 9 | 7 | 2 | 6.66  
| Vendor managed inventory /Customer managed inventory | 3 | 3 | 2 | 6.66  
| 100% partner connectivity | 12 | 1 | 3.33  
| A mutually constructive attitude to quality | 6 | 1 | 3.33  
| A virtual network | 3 | 1 | 3.33  
| Ability to change delivery times of supplier's order | 6 | 1 | 3.33  
| Advanced manufacturing technology | 2 | 1 | 3.33  
| Align core competencies and complementary capabilities | 9 | 1 | 3.33  
| Booked delivery | 5 | 1 | 3.33  
| Business intelligence | 13 | 1 | 3.33  
| Centralization and strategic planning in the procurement and materials function | 4 | 1 | 3.33  
| Concentration on success factors | 6 | 1 | 3.33  
| Continuous competition for buyer's orders | 2 | 1 | 3.33  
| Continuous competitive pressure on the supplier | 1 | 1 | 3.33  

| Activity                                                   | Value | Weight | Rank | Score |
|-----------------------------------------------------------|-------|--------|------|-------|
| Cost based negotiation                                    | 5     | 1      | 1    | 3.33  |
| Cross-functional teams                                    |       |        | 1    | 3.33  |
| Currently implementing lean and/or six sigma             | 10    |        | 1    | 3.33  |
| Customer integration                                      | 5     |        | 1    | 3.33  |
| Design for manufacture                                    | 4     |        | 1    | 3.33  |
| Develop a flexible and responsive supply chain            | 2     |        | 1    | 3.33  |
| Develop quick response capability                         | 7     |        | 1    | 3.33  |
| Differentiation                                           |       |        | 1    | 3.33  |
| Discrete purchase orders                                  |       |        | 1    | 3.33  |
| Distance and the accuracy of sales forecasts              | 5     |        | 1    | 3.33  |
| Distribution centre and ports location                    |       |        | 14   | 3.33  |
| Ensure visibility and transparency                        | 6     |        | 1    | 3.33  |
| Establish collaborative relationships while balancing cooperation and competition | 5     |        | 1    | 3.33  |
| Extend systems to suppliers                               |       |        | 2    | 3.33  |
| Financial settlement                                      | 2     |        | 14   | 3.33  |
| Flat hierarchies                                          |       |        | 4    | 3.33  |
| Focus on the supplier network value stream                | 1     |        | 1    | 3.33  |
| Form natural clusters of products and design processes appropriate to each value stream | 7     |        | 1    | 3.33  |
| Process Description                                                                 | Weight | Priority | Value | Rank |
|------------------------------------------------------------------------------------|--------|----------|-------|------|
| Foster innovation and knowledge-sharing                                             |        |          | 10    | 1    |
| Incorporate demand and production variability, inventory levels, and supplier lead-time as part of the schedule creation process |        |          | 4     | 1    |
| Internal integration                                                                |        |          | 6     | 1    |
| Joint decisions towards cost savings                                               |        |          | 4     | 1    |
| Joint planning of capacity and delivery                                             |        |          | 3     | 1    |
| Joint research and development                                                      |        |          | 8     | 1    |
| Key process indicators                                                              |        |          | 5     | 1    |
| Lean manufacturing Elements                                                          |        |          | 1     | 1    |
| Lean resupply                                                                       |        |          | 2     | 1    |
| Learning organization                                                               |        |          | 10    | 1    |
| Load consolidation                                                                  |        |          | 8     | 1    |
| Local sourcing                                                                      |        |          | 8     | 1    |
| Logistics centers                                                                   |        |          | 7     | 1    |
| Manage suppliers with commodity teams                                               |        |          | 3     | 1    |
| Manage uncertainty and risk                                                          |        |          | 8     | 1    |
| Mass customization                                                                  |        |          | 10    | 1    |
| Material movement simplification                                                    |        |          | 3     | 1    |
| Minimal paper work                                                                  |        |          | 7     | 1    |
| Minimize both transaction and production costs                                      |        |          | 3     | 1    |
Minimize the material throughput time, i.e. compress all lead times.

| Mutually negotiated price changes | 3 | 1 |
|-----------------------------------|---|---|
| No incoming quality inspection    | 13| 1 |
| Only make in one period those components you need for assembly in the next period | 2 | 1 |
| Only make products which you can quickly dispatch and invoice to customers | 1 | 1 |
| Operations excellence             | 5 | 1 |
| Organization Elements             | 1 | 1 |
| Organizational changes            | 7 | 1 |
| Perfect first-time quality / quality at sources | 1 | 1 |
| Postponement                      | 4 | 1 |
| Process monitoring                | 11| 1 |
| Provide materials, tools, and information to workers at point of use | 9 | 1 |
| Reduction in the variety of materials employed in manufacturing the products | 10| 1 |
| Reengineering                     | 3 | 1 |
| Resilient systems                 | 7 | 1 |
| Resolve conflict between manufacturing efficiency and customer service | 1 | 1 |
| **Respect for all stakeholders and utilizing their full capacity** | 8 | 1 | 3.33 |
| **Run parallel material requirement planning processes** | | 4 | 1 | 3.33 |
| **Self-invoicing customers** | 5 | | 3.33 |
| **Shipping and receiving, scan and trace** | 8 | 1 | 3.33 |
| **Shop floor activity** | 10 | 1 | 3.33 |
| **Speed in improving responsiveness to changing market needs** | | 4 | 1 | 3.33 |
| **Stock held for customer** | 4 | | 3.33 |
| **Strive for reduction in complexity** | | 9 | 1 | 3.33 |
| **Supplier consortiums** | 4 | | 3.33 |
| **Supplier shipping schedules** | | 2 | 1 | 3.33 |
| **Supply chain agility** | | 3 | 1 | 3.33 |
| **Supply chain synchronization** | 2 | | 3.33 |
| **Swift transit** | | | 15 | 1 | 3.33 |
| **The Business process target is the seamless supply chain, i.e. all players Think and act as one** | | | 12 | 1 | 3.33 |
| **The milk run delivery** | | | 11 | 1 | 3.33 |
| **The reduction of intermediary mechanisms** | | 4 | 1 | 3.33 |
| **Third-party logistics providers** | | | 5 | 1 | 3.33 |
| **To produce in large or small batches** | | 5 | 1 | 3.33 |
| **To work with product designers** | | | 11 | 1 | 3.33 |
and suppliers to reduce environmental impacts

| Topic                                                                 | Code | Value |
|----------------------------------------------------------------------|------|-------|
| Transport sharing                                                    |      | 3.33  |
| Understand document, simplify and only then optimize (UDSO) the supply chain |      | 3.33  |
| Use an enterprise application that supports and steaminess your lean efforts | 5    | 3.33  |
| Use only proven simple but robust Decision Support Systems            |      | 3.33  |
| Value chain efficiency                                               | 4    | 3.33  |
| Visibility of customer production schedules                           | 7    | 3.33  |
| Volume leveraging                                                     | 2    | 3.33  |
| Warehouse management                                                  | 7    | 3.33  |

| Total | 10 | 8 | 7 | 9 | 5 | 16 | 10 | 5 | 8 | 6 | 6 | 5 | 10 | 7 | 10 | 5 | 3 | 5 | 5 | 11 | 6 | 5 | 3 | 6 | 9 | 9 | 13 | 15 | 12 | 14 | 243 | 810 |