Introduction to VCOR

The Value Chain Operations Reference model – VCOR is instituted to support the Evolution of the Business Environment

Value Chain's and their networks are now being elevated to priority status. CEO's are receiving board room pressure for complete process accountability together with horizontal integration of all the processes thus providing the best possible value to the value chain's customer.

The VCOR model supports the key issues and the gearing together of processes within and between the individual units of chains (networks) for the benefit of the following:

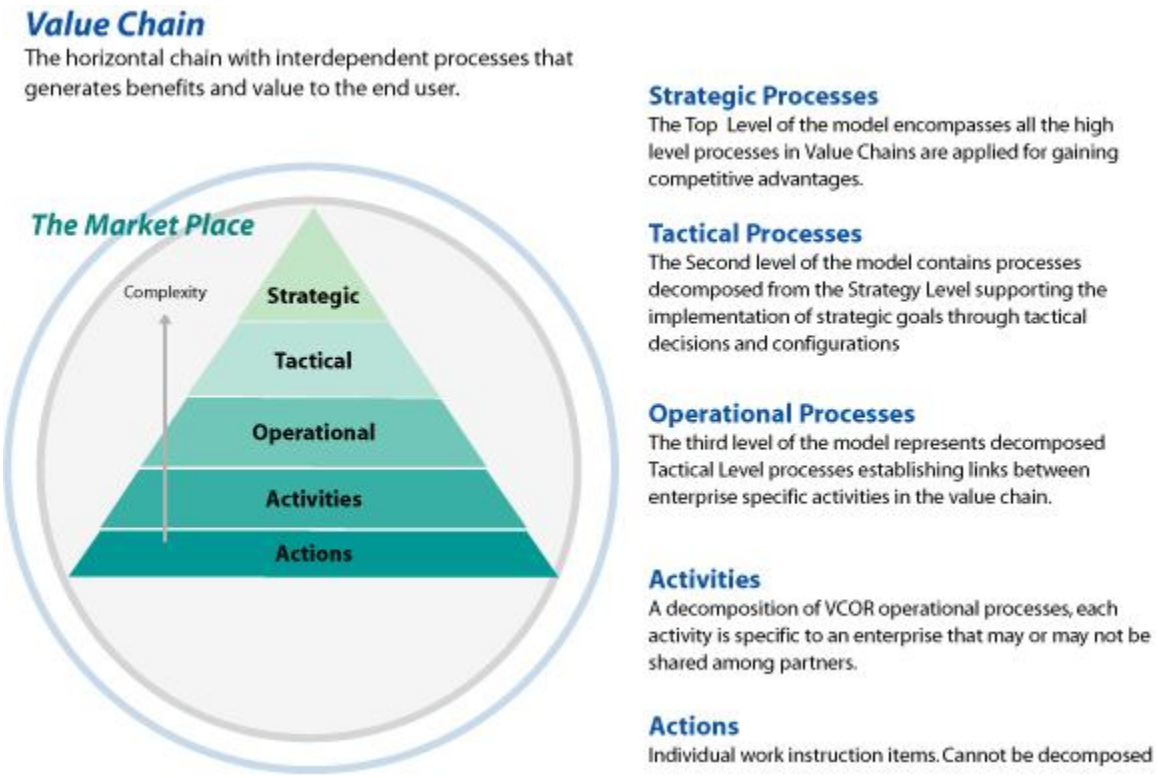
Planning
Governing
Execution (information - financial - physical flows)

with the objective to increase the performance (yield) of the total chain and support the ongoing evolution.

The structure of the VCOR model supports and enables corporations to integrate their three critical domains; Global Product Developments, Global Supply Network Integration and Global Customer Success, using one reference model to support the vision of an integrated value chain.

Corporations applying the model are able to reach their goals of both horizontal and vertical collaboration. VCOR uses a "process based, common language" of syntax and semantics while at the same time creating a foundation for the successful Service Oriented Architecture Game Plan.

The Hierachical Structure of VCOR



Strategic Level

The Top Level of the model encompasses all the high level processes in Value Chains and are represented through the Process Categories Plan – Govern – Execute. The Level is defined to be the Strategic Level of the Model, meaning that this is where high level decisions are made regarding how to gain a competitive advantage for the Value Chain in scope.

An example of such a competitive advantage could be Increased Market Share through a Cost Optimized, Adaptive Value Chain and extensive Collaboration with Customers and/ or network partners. By some this level of the model is categorized as the C-Suite.

Tactical Level

The Second level of the model contains "abstract" processes decomposed from the Strategic Level. To implement and fulfill the strategic goals set in the top level of the model hierarchy a set of tactics needs to be developed and realized. Examples of such tactics can be in- or out-sourcing of activities within one - or multiple domains, change of value chain planning such as (e.g. Sales and Operation Planning), focusing on product development to gain a competitive advantage or changing from "push to pull" conditions for the supply network.

Operational Level

The third level of the model represents specific processes in the value chain related to actual activities being executed. On this level focus is usually vertical business process improvements or business process re-engineering as many name it. In a value chain perspective this is the level where fine-tuning occurs.

The Activities and Actions

These levels of granularity are not in scope of the VCOR model itself but given decompositions of the VCOR models third level of processes.

The VCOR ValueCards

Network Level ValueCard

Network Goals	Description	Tactical Objectives
Collaboration	to achieve high Degree of strategic alignment in the value chain to achieve highly integrated business processes, either for planning or execution aspects	global vs. local optimum reduced Value Chain lead times reduced transaction costs
Coordination	to achieve seamless information and material flows between in the partner network to achieve high degree of Information transparency	reduced total inventory higher efficiency resource utilization higher inventory turns higher delivery reliability
Transformability	to achieve high potential of flexibility in (re)configuration of value chains for customer responsiveness.	speed up logistics (VC) decisions quicker time to market higher customer responsiveness maximize value to final customer
Profitability	to achieve the maximum amount of profit from a given market segment.	reduce purchase material cost maximize asset unitization reduce cash to cash cycle

The VCOR model supports the issues of value chain horizontal improvements, strategic goals and tactical decision making through two essential tools being the Value Card with Value Chain Network Goals, and the Value Card for the setting of Priorities for the Enterprise.

Most organizations would prefer to operate in a scenario with all their value chain partners using the same goals and priorities as their own. However, this is hardly the case in practice.

For the purpose of intra-company developments across value chains with multiple strategy and business plans the VCG has instituted the Value Card with Network Goals. A set of Attributes are proposed in the Value Card to act as guidelines for the developments.

Enterprise Level ValueCard

The Enterprise Level Value Card's purpose is as being a guide for deciding on priorities within the boundaries of the enterprise’s area of direct influence and decision making.

The Value Card on the Enterprise level is created to support implementation of Strategic and Business Plans as well as being a guide and support tool for Tactical Plans and Priorities. The seven Priority Dimension do "compete" and a priority between them should be established and communicated at an early stage of any developments.

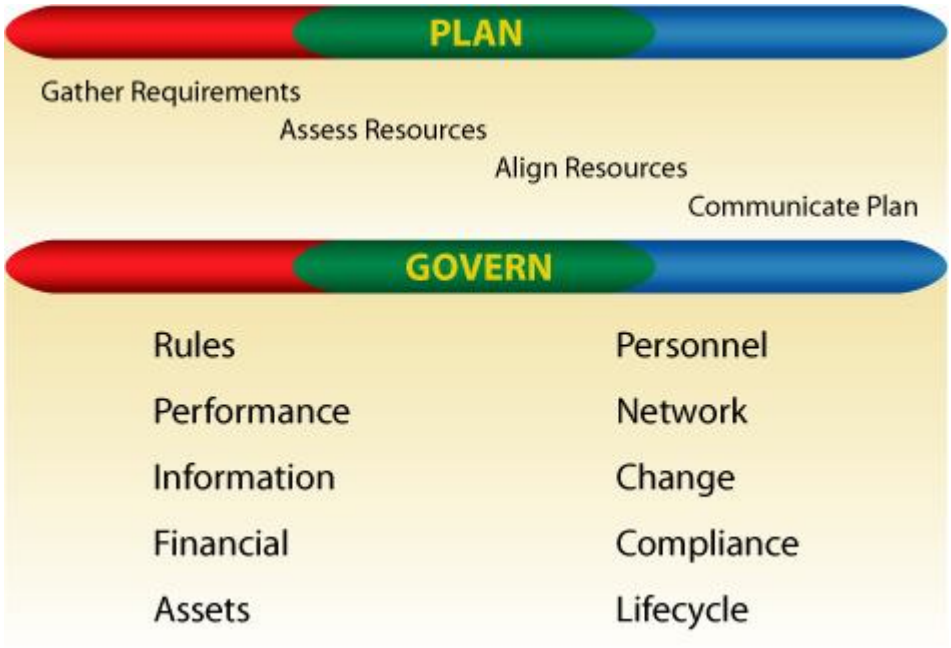
Enterprise Level ValueCard & supporting metrics

"You can not run a business without metrics" - is true and the Value Chain Group is certainly aware of that fact. Each of the Seven Priority Dimensions have a set of supporting performance indicators (metrics) enabling high level performance for monitoring each of the dimensions.

The VCOR Processes

Strategic Level - Macro Processes

The Plan and Govern Process categories encapsulates:

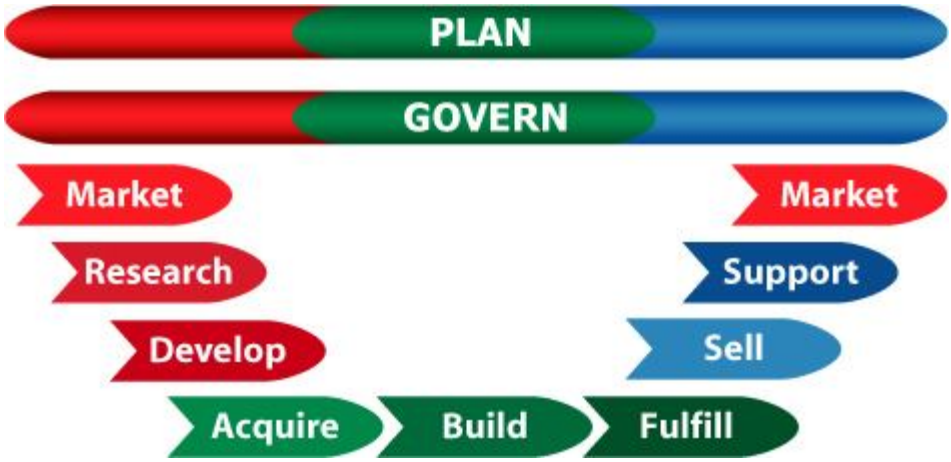


The VCOR Tactical Level Processes

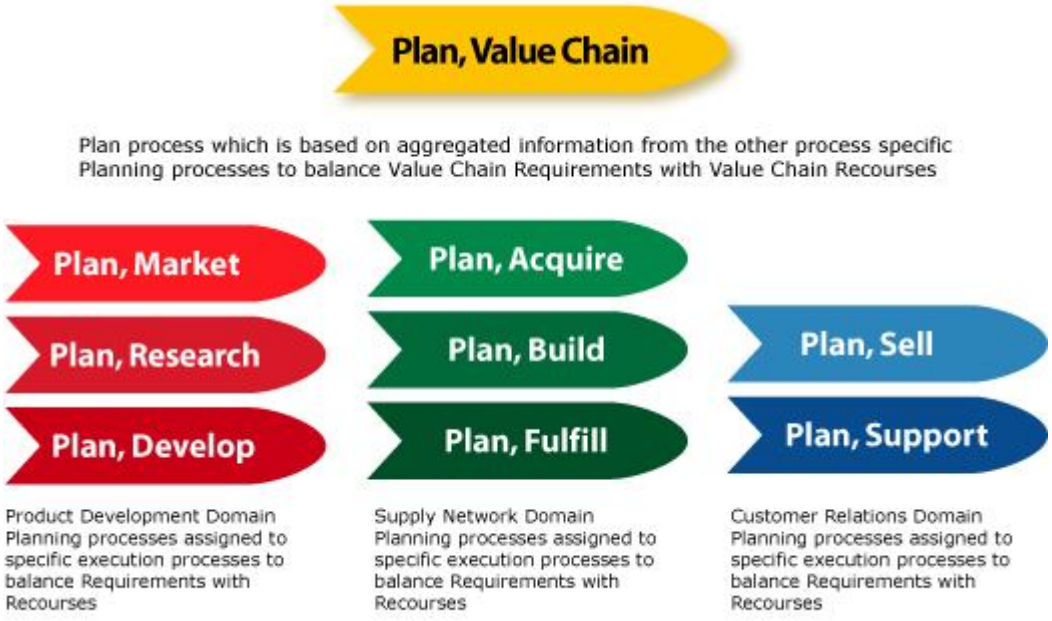
The Tactical Level can be described being instituted for "Horizontal Value Chain Process Re-Engineering" The VCOR model processes decomposes from Strategic to the Tactical Level with

Plan and Govern keeping their respective naming in the first part of the process notations on this level as they influence each of the Execution Processes e.g. Plan Research and Govern Support (not shown in the figure).

Execute decomposes to Market-Research-Develop-Acquire-Build-Sell-Fulfill-Support. Specific for the Market process is that it actually has an impact on all the other execution processes demonstrated by being shown on top in both ends of the execution processes in the figure bellow.



Details on VCOR Tactical Level - Plan Processes



Details on VCOR Tactical Level - Govern Processes

Govern process which is based on aggregated information from the other process specific Govern processes to develop and maintain decision support criteria and rules for the relationships in the Value Chain.

Product Development Domain
Govern processes assigned to specific execution process to develop and maintain decision support criteria and rules for the relationships in the Value Chain

Supply Network Domain
Govern processes assigned to specific execution process to develop and maintain decision support criteria and rules for the relationships in the Value Chain

Customer Relations Domain
Govern processes assigned to specific execution process to develop and maintain decision support criteria and rules for the relationships in the Value Chain

Details on VCOR Tactical Level - Execution Processes

The alignment of value chain needs with product developments, supply network capabilities and supplier relations

The preparations necessary for product developments

The definition and creation of a product or service for manufacturing or market entry (services)

The acquisition from suppliers of goods and services enabling further value-adding activities

The transformation of materials according to Value chain Requirements.

The preparations for delivery, the deliveries and following activities fulfilling customers demands

The activities related to sales

The after-sales activities performed in a customer relationship

VCOR Tactical Configurations

VCOR offers Tactical Configurations as a sub-set of processes to the domain specific execution processes. They are instituted to support Strategic Decisions and to describe the business conditions of Tactical Level Processes being applied.
In certain scenarios Tactical Configurations are not relevant and can lead to confusion for those modeling and analyzing the output of the work being done. For this reason VCOR configurations are optional to apply.

However in scenarios were configuration are relevant the VCOR model offers options in all the three domains being Product Developments, Supply Networks and Customer Relations options

Product Development Configurations

The VCOR model currently offers Design to Market, Co-Design and Design to Spec as Configurations for the Product Development Domain. It is expected that more will be added as practical application of the model and this particular Domain in a Value Chain context is executed.

Supply Networks Configurations

The VCOR model offers Stocked, To-Order and Engineered to Order Configurations for the Supply Network Domain. They are instituted to support the developments of Push (activities are forecasted), Pull (activities are based on a firm order) and Engineered to Order (Pull activity requiring Engineering) in Supply Networks.

Customer Relations Configurations

The VCOR model currently offers New Product to Existing Market, New Product to New Market, Existing Product to Existing Market and Existing Product to New market Configurations for the

Customer Relations Domain.

VCOR Operational Level

In a horizontal value chain perspective the Operational Level is usually applied after the Tactical Level processes have been structured to support Strategic goals and objectives for the purpose of fine-tuning processes. The level is more intra-enterprise focused and as such more applicable for "vertical" improvements than "horizontal" from a value chain perspective.

This Level can of course also be applied directly for traditional BPR purposes without applying the Tactical Level first depending on the users scope of VCOR application.Regardless of how the user chooses to apply the model the Inputs and Outputs on this level are valuable guidelines for BPMS (Business Process Management Services).

The 26 Tactical Level Processes decomposes to 191 Processes and an example of such I shown in the figure bellow using the Tactical Level "Acquire" process.

Process Details in the VCOR Model

The processes of the VCOR model includes a standard format of information. The format includes Process Definitions supporting the benefit of having a Common Language and Semantics, Priority Dimensions with supporting performance indicators, Practices and Input/Outputs.

The Strategic Level Plan, Govern and Execute processes are an exception to this standard and do not include process having specific metrics represented in the Value Cards and Inputs/Outputs…... An example of the information represented for each of the processes is shown in the figure below:

D03 - Design Product

The process of converting product requirements into a working product or service configuration.

Inputs/Outputs		Metrics	Practices
In	**From**	**Adaptilabilty**	Concurrent Design
Corporate Performance Targets	VP3	Standard Parts and Process (by Product)	Phase/Stage Gate Process
Design Partnerships	DG07	**Cost**	Rapid Prototyping
Design Standards	DG03	Cost of Design Ratio	Simulation
Engineering Change Request	D05	Engineer Change Notice Cost	Virtual Product Development
Product Performance Analysis	U07	Standard Part Ratio	
Product Requirements	D01	Warranty Cost per Unit Shipped	
Product Technology Plan	D02	**Innovation**	
Product Usage Analysis	U07	Average Number of Parts	
Project Contract	M07	Components per Product, Average	
Validated Technology	R05	Number Of Product Designs	
Out	**To**	Part Count Reduction	
Engineering Change Notice	DG08	Parts Recyclable Ratio	
Material Cost Estimates	A02	Parts Reuse Ratio	
Material Cost Estimates	A01	Product Cost from Royalty Fees	
Packaging Specification	B05	Product Revenues From Royalty Fees	
Performance Feedback	DG02	Performance to VOC at Prototype	
Product Configuration / BOM	D04	Product Part Complexity	
Product Configuration / BOM	D05	**Reliability**	
Product Manuals	U05	Total Number of Engineering Changes	
Product Specification	D04		
Product Specification	D05		
Prototype / Simulation	D05		
Service Manuals	U06		
Storage Instructions	B06		
Test Plan	D05		

VCOR Metrics

"You can not manage without metrics" – or performance indicators as some say. The individuals

involved in developing the VCOR metrics all have a broad experience of developing and applying metrics and are willingly sharing their experiences to ensure the delivery of the highest possible quality. With our extensive focus on quality and details we are introducing a new metric standard for BPM models to the market.

The Seven Priority Dimensions have a set of supporting performance metrics enabling performance monitoring of each of the Priority Dimensions through the levels of the model linking Strategy – to Tactics - to Operations. Below is a figure showing the structure of VCOR metrics followed by a metric example to demonstrate the level of detail and quality we are investing in this work.

Metric Name	Brief descriptive name less than 50 characters
Metric Definition	Detailed definition usually one sentence to two paragraphs in length
Priority Dimensions	Strategic Classifications used in Value Chain Alignment
Metric Class & Sub Class	Classifications for navigation and search index
Formula	Algorithm for calculating metric value. Some metrics are considered a "Base Metric" in which calculations are not required.
Input Requirements	Suggested application data fields and sources to acquire information necessary for performing the calculation
Dimensions	Sources of input from different areas of involvement
Calculation Rules	General notes and guidelines for use of the metric

VCOR Metric Example

Name

Delivery Performance, Request Date

Definition

The percentage of orders delivered complete on the customer request date.

Priority Dimension - Reliability

Metric Class - Operation Performance **Sub Class** - Logistics

Formula

Delivery Performance, Request Date = o/d

On Time in Full, Request Date
Orders Delivered per Period, Commit Date

Unit of Measure – Percentage (%)

Input requirements

Order line:
- Customer request date
- Customer reception date (delivered to customer at customer destination date)
- Dispatch date from warehouse
- Order place date
- Ordered quantity
- Dispatched quantity
- Received quantity
- Manner of transport

Customer information:
- Average transport lead time in days or hours from dispatch warehouse to customer reception warehouse (address)

Sales Order Line:
- Order ID
- Company ID
- Customer ID
- Warehouse ID
- Customer warehouse ID
- Item ID
- Manner of transport ID

Dimensions

- Time Dimension
- Company Dimension
- Business Partner Dimension
- Warehouse Dimension
  - Company warehouse
  - Supplier Warehouse
  - Customer Warehouse
- Item Dimension
- Supply Chain Dimension
- Order Type Dimension
- Manner of Transport Dimension

Calculation Rules

Calculation of Overall performance:
A) Number of orders delivered complete to customer request date
B) Number of orders delivered in the measurement period

Calculation of dimensional (segment) performance:
A) Aggregate order line to selected segment, and count orders delivered complete to Customer request date (segment order = Sum of orders in the segment)/
B) Aggregate order line to selected segment , and count segment orders delivered in the measurement period (segment order = Sum of orders in the segment)

A) Orders delivered complete to customer request date: Count number of order lines where customers have received:
- Items: Quantity ordered is equal to quantity received (delivered to customer at customer site)
- Date: Reception date is before or equal to requested delivery date.
B) Count total number of order lines received from customers in the selected measurement period. Divide A) by B)

- To make an absolutely correct calculation, it is recommended that the real reception information is collected from the customers. This information could be collected as an import file from customer, transport providers or other 3PL. (practice candidate).
- If this requirement is to hard to accomplish, a calculated reception data at customer site based on Dispatch Date + estimated average transport lead time in days or hours is an optional calculation. If available, average lead time based on manner of

transport is an even better specification., because average lead time will vary, based on manner of transport. Unfortunately, you must then assume that dispatched quantity is equal to received quantity (witch is not always the truth). VCG's recommendation is that you try to get as updated and real information as possible, and combine the two solutions to perform the calculation.
Flags that represent where you have used real data versus calculated and assumed data will expand the analytical value.

Customer Request Date is the date the customer requested the order lines delivered.

Only "New Order Lines" shall be counted in the "Total Order Lines delivered in the period "summary". Back-order lines are not to be counted as "New Order Lines". Sum of order lines in selected dimension must be added to show total number of orders for the dimensions. The aggregated totals shall be based on orders (not order lines), and the numbers to display in the reports are aggregated by dimension.

Value Chain dimension and selections shall make it possibility to aggregate several order lines from one order, to the value chain dimension that is based on the defined VCOR Value Chain Types (order. stock and engineer). It will the be possible to see the measure and analyze:
- All Stock keeping units from several orders
- All Make to order products from several orders
- All Campaign products from several orders

Note that drill down functionality will be according to the single VCOR users data structure and possibilities. ID's in the users data set will enable drill down possibilities and segmentation and VCOR's list of identification codes such as Item ID, Supplier ID, Value Chain ID and customer ID , with related dimension data is suggestions, not laws.
This calculations shall be displayed as a percentage (%) value
- Recommended measure name in reports: VCOR Delivery Performance to Customer Request %
- Value guide: A high ratio is good and a low ratio is not. Business people would say that this value should be >90%

VCOR Inputs / Outputs

To enable high level horizontal input and output mapping the VCOR introduces Inputs and Output templates and guidelines for Tactical Level Processes beyond demonstrating Material flows. In addition to Material flows the VCOR model also includes Financial, Resource and Information flows.

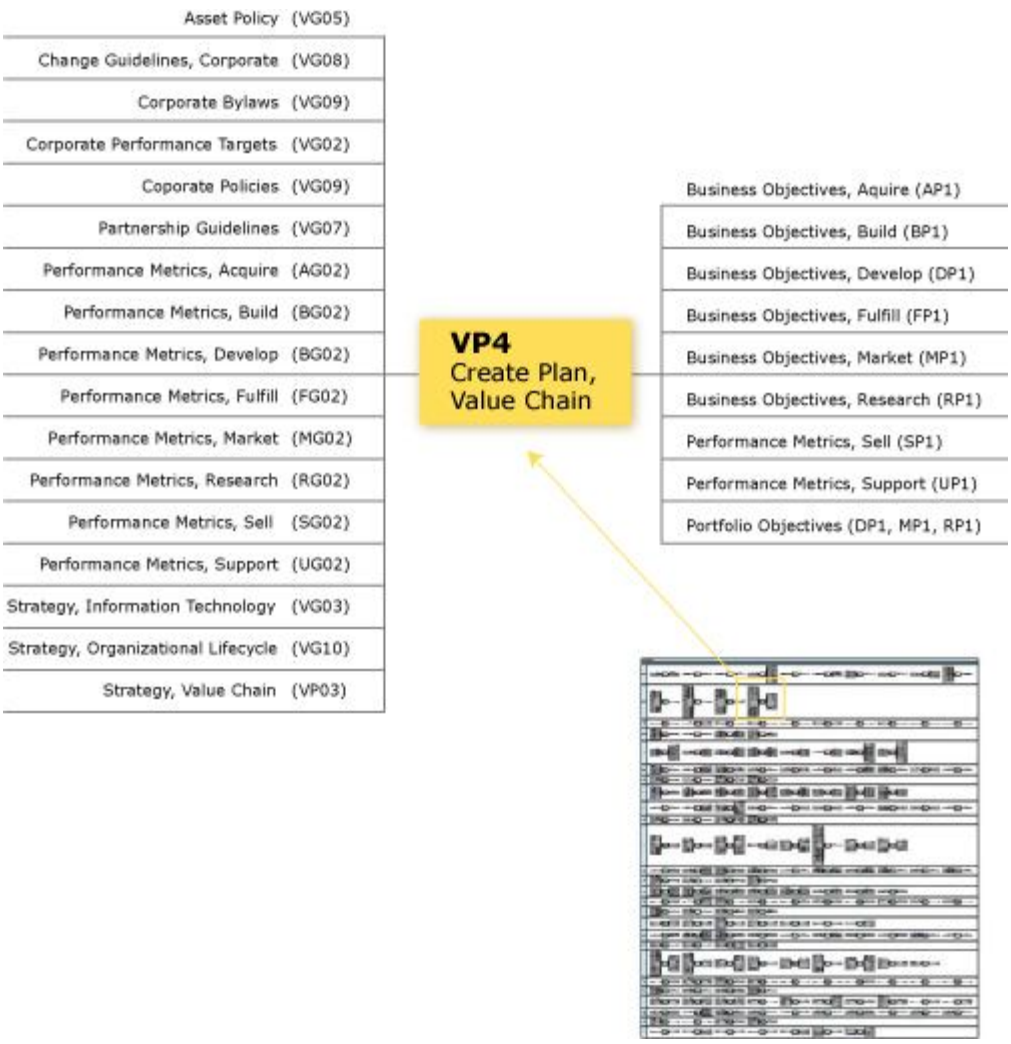
The Operations Level Inputs and Outputs are developed to a high quality with emphasis on avoiding disconnects . This to achieve ease-of-use and to support users of the model minimizing frustration.

The figure below shows the matrix VCG uses as a guideline for Input/Output developments.

IO Type	Sub Type	Examples
Financial Input or output that represent monetary transaction between independent fiscal entities.	**Cash** financial transaction of immediate conversion into buying power.	Euros, Dollars, Yen, Kroners, Gold, Silver
	Credit financial transaction that generates a time based interest of the original value	Customer Credit, Employee Credit
	Receivable financial transaction of future dated cash positive transfer subject to explicit conditions	Cash Sales, Customer Invoices
	Payable financial transaction of future dated cash negative transfer subject to explicit conditions	Supplier Invoices, Interest Payments
	Budget allocation of available financial resources within a company or department, from which other financial transactions can be executed	Sales Budget, Marketing Budget
Material Input or output that has physical form and constitutes an integral part of the final product of the value chain	**Raw** elementary form of material used for primary production processes that perform direct extraction of natural material form into a workable pre-fabricated form	Silicon, Iron, Steel, Aluminum
	Part non-detachable pre-fabricated material that performs a specific function within the final product but by itself does not provide any use	Nuts & Bolts, Semiconductors, Machined Castings
	Component detachable set of parts that provides a specific function within the final product and can be used in one or more finished goods	Transmission, Electric Motor, Hard Drive
	Products A configured set of components that provides targeted value proposition to the targeted end users	Computers, Automobiles, Airplanes, Packaged Food, Banking, Transportation Services
Resource Input or output that is used to perform or enable the activities within the process (see resource definition). Resources perform activities, enable activities, can be consumed within them to produce Material I/O-s and/or Information I/O-s and can also be produced by the activities	**Asset** a resource that enables the activities to conclude according to their objectives	Real Estate, Information Technology
	Human a resource that performs activities within the process	Controller, Enabler, Producer
	Information Technology A resource that enables exchange of information I/O-s and performs digital business logic interpretation and automated execution of calculation activities.	Services, Interfaces, Applications, IT Systems
Information Non-material input or output that defines or executes logical configuration of the process and is used for reasoning about and within the process by resources performing the activities.	**Document** an information I/O that provide awareness, carries context specific knowledge and/or context specific instructions to the human and/or IT resources	**Structured** - Annual report, Design Specification **Unstructured** - Personnel Training Requirements, Preliminary Concept drawing
	Transaction An I/O with binding effect that ties process resources into a context specific relationship for its duration.	**Contract** - Production Schedule, Purchase Order **Request** - Production Schedule, Purchase Order **Confirmation** - Engineering Change Notice
	Decision information that sets boundaries of value definition for resources to follow within the process or represents logical conclusion of the activities within the process	**Rules** - Asset Governance Policy, Budget Allocation Policy **Situational** - Production Plan, Resource Assignment

VCOR Input /Output Detail

The figure bellow demonstrates the level of detail that has been put into organizing and linking the Operational Level Processes within the model.

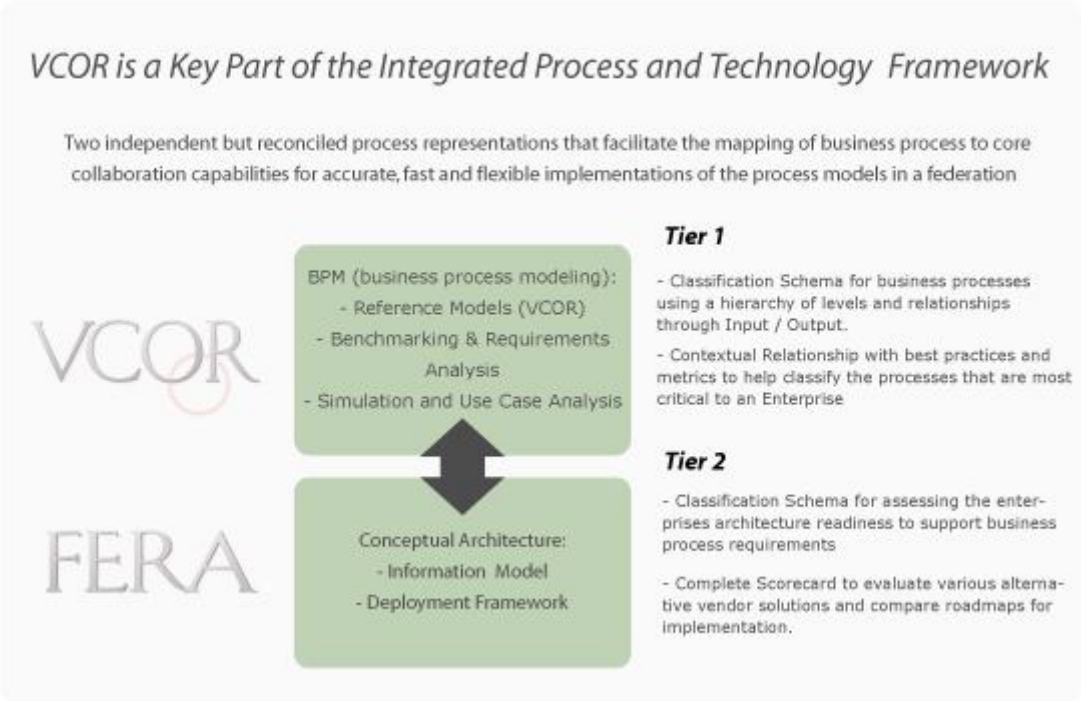


Integrated Process & Technology Framework ©

The Value Chain Group is well aware of the challenges bridging BPM (Business Process Management), IT Applications and BPMS (Business Process Management Services).
The VCOR BPM model enables organizations to effectively develop and get knowledge of the processes in their Value Chains. With a comprehensive process architecture in place organizations are ready to determine use of technology to support the processes.

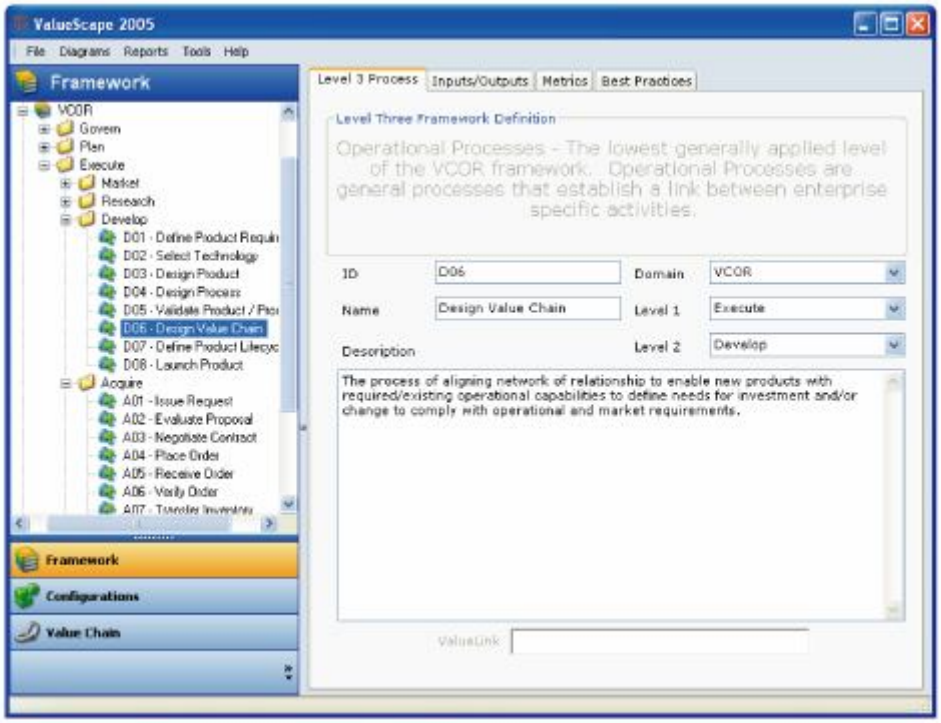
The VCG together with partners has develop what we call the Integrated Process & Technology Framework © to support the process of successfully aligning business and IT strategies, architecture, design, execution, monitoring and management of the processes. With this initiative the VCG creates a "bridge" and partnership between process owners and IT addressing organizational and cultural issues by balancing people, process and technology.
Besides VCOR the Federated Enterprise Reference Architecture (FERA) model is an essential component in the Framework. FERA may or may not be applied depending on what scenario is being developed. For Service Oriented Architecture (SOA) specific templates have been developed to support the "game-plan" without applying FERA.

Bellow is a figure showing the relationship between VCOR and FERA being the essential components of the framework.



The VCOR model is available in a electronic read-only format

VCOR has been database-managed since its inception enabling VCG members to navigate in the model with ease. Bellow is a screen shot shown and by clicking on the link bellow you can enjoy a demonstration of the tool. View ValueScape demo.



VCOR Benefits Statement

The VCOR model enables organizations to develop unique competitive Value Chains with highly integrated business processes that cut across corporate and functional boundaries supporting the strategy of the corporation through;

- being instituted with a structure enabling corporations to integrate the three critical domains of Global Product Development, Global Supply Network and Global Customer Success

- having a hierarchical structure reflecting the layers of decisions and operations found in most corporations

- ValueCards supporting strategic decisions and tactical deployment of the same decisions

- Priority Dimensions linking Strategy and Tactics to operations on all levels of the model

- being a process standard from a non-for-profit organization enabling internal and external collaboration with a "common language"

- Tactical configurations enabling customization of value chains

- Providing the framework for a successful integration of business processes an IT also having the capabilities of supporting the creations of a successful SOA game plan

- ease of navigation in the model being available in a electronic format