
Emergence of Collaboration as a Competitive Tool

Paul Helm

Hewlett-Packard

Filton Road
Stoke Gifford
Bristol
England

Phone +44 1344 365 007
Fax +44 117 312 9250

paul_helm@hp.com

Abstract

Chapter 2 of the Internet is still in its infancy, but it's already transforming the way the world conducts business. Companies that rely solely on their own efforts to produce goods and services, compete in the global marketplace, and maintain customer loyalty are in danger of becoming the "dinosaurs" of the e-economy. They could soon be replaced by Value Collaboration Networks (VCNs).

VCNs are dynamic business ecosystems that utilize Chapter 2 Internet technologies to adopt collaborative, customer-centric business models and create new revenue streams from entirely new and evolving markets. Value Collaboration Networks are not just concepts to be adopted in the future. Some VCNs are already coalescing around newly-organized Collaborative Portals, which are expected to exploit such innovative product production processes as inter-enterprise collaborative product design and mass-customization in the near future.

To show how Value Collaboration Networks function, this paper focuses on a 'day-in-the-life' of an imaginary Value Collaboration Portal as it engages an extensive range of e-services, brokering agents, multiple partners, and multiple competitors to create and deliver a new marketing technology for a fictitious company. The presentation examines the various interactions between nimble collaborators and competitors as they respond to a Request for Proposal, in order to explain how resources are located, decisions are made, and goods are delivered. The purpose of this paper is to give a full understanding of the concept of Value Collaboration Networks, rather than to delve into the technology that will be required to enable VCNs.

Before embarking on the design scenario it is necessary to understand the basic operating principles of cooperation of the Collaborative Ecosystem economy. To this end the next section discusses a set of five basic operating principles upon which Value Collaboration Networks are based.

Operating Principles

The operating principles outlined below are extensions to and refinements of existing principles of trading partner collaboration enhanced to reflect the possibilities for change offered by the application e-services technology to the business world.

- Networks of Companies will compete
- Business process will evolve to span Enterprises
- Commercial Relationships will polarize
- "Trust" imperative will grow and strengthen
- New models of Value assessment and Allocation must evolve

Addressing each point raised in further detail:-

Networks of Companies will Compete

- Increasing commercial pressures will lead to collaboration between companies in bringing Products and Services to Market.
- Outsourcing core incompetence will increase
- Focus on Core Capabilities is essential
- Conversion of Core Competence to services will become the norm.

This is the basic premise upon which the Value Collaboration Network model is based. There is much evidence to suggest that the aggregative approach to addressing emerging markets is already happening though is to a great extent limited by Technology, trust and Inertia.

Outsourcing models have evolved around relatively easily de-coupled operations – building maintenance, catering, IT, etc. exhibit the basic principle of ‘if you can buy it in cheaper, even at the cost of quality of service (in some circumstances) then outsource it’. Early compromises have given way to a more rigorous and quality conscious approach in the outsourcing of, for example, manufacturing capability, procurement etc. as seen in the growth of Contract Manufacturing.

Many industry segments are showing a trend towards outsourcing core-incompetence, and the aggregation of best of breed partners – even with the fundamental processes of product/service design and development. The detail varies depending on Industry, maturity and market readiness, but most are moving in this same direction.

Business process will evolve to span Enterprises

- Continued progression towards cross-company process flows
- Enterprise cross-silo / function flows
- Trading Partner interactions – connected process
- Collaborative continuous process
- Supported by workflow, operated as commercial infrastructure – dynamic, responsive.
- Governance, legal and commercial Framework

Tightly related to the Trading Partner integration drive brought on by the early growth of Value Collaboration Network, the basic trend has been for an ongoing move to remodel the ‘Business Process’ to exploit greater efficiencies.

Primarily, early re-engineering of Enterprise business process was cost and efficiency driven, focused on internal efficiencies and geared to orient away from silo’d or functional activities into cross-functional process flows.

Having achieved some success in focusing inwardly the next stage involved finding a means of interfacing the cross-functional processes to external parties - trading partner integration. Though heavily restricted by Legacy or Enterprise integration limitations and the cleanliness of data and process, initial attempts have resulted in restricted asynchronous automatic, and

more often, human (web interface) based interactions. Trading Partner integration exhibits the first stage in a fundamental shift in how Collaborating companies will operate.

In the mature stage, the focus moves from concentrating on enterprise centric processes with interface touch points with other trading partners. The entire end-to-end collaborative process will evolve to a distributed model. Here, inter-enterprise processes move from asynchronous to synchronous in nature, and at any point in time may be the responsibility of any one of a number of separate organisations. In this stage the dependence for success is now focused on the trust mechanisms in place supported by an always-on infrastructure – both technical and commercial.

The practicalities of such a model obviously require the ability to track/monitor, or at least enquire, on process status backed and supported by an agreed escalation path. Fully automated distributed processes of this nature must be established rapidly, even dynamically, without the need for lengthy mapping or modelling. A cross organisation workflow integrating the elemental capabilities, needs and operating principles has to establish and manage the dependencies and requirements of each component player. This includes understanding the local application dependencies, available dialogs, local standards, data syntax and vocabulary and the using of appropriate e-services to convert between non-uniform implementations. This approach doesn't supplant the need for universal standards, but does acknowledge the existence of competing or immature standards bodies.

Commercial Relationships will Polarize

- A polarization of commercial relationships
- At one extreme, commoditization of more product and services
- Increased competition
- Dynamic brokering
- At other extreme tighter collaborative ventures
- Key capability relationships
- Long term tightly meshed processes

Many models of the ecosystem economy extol the virtues of entirely commoditized relationships – the identification, selection and negotiation of supply/purchase in an entirely dynamic fashion. Though it is highly unlikely that entire market dynamics will shift to the commodity end of the spectrum there will be an ongoing polarisation of trading relationships with previously negotiated, long term supply relationships moving to a commodity position based on the ability to locate, negotiate and settle dynamically online.

Whilst the 'dynamic' capabilities of Collaboration Networks in identifying, engaging and interacting with partners is extremely important as we shall see in the scenario painted below, not all relationships will be transient in nature. Value Collaboration involves value generation and recognition for all parties, not just the 'Channel Master'. There will be value in establishing mutually beneficial long term relationships with trading partners. Longer term trusted relationships facilitate a mutually beneficial and reinforcing partnership – a value contribution missing from transient linkages.

Trust Imperative will grow in importance

- Trust of all components of the Business Network is critical
- Business and Commercial relationships are based on Trust
- Trust is supported by documentary means (audit)
- Trust extends beyond Security
- Trust requires Verification mechanisms

Trust is often confused with Security. It is however significantly more than security technologies as it involves the embodiment of commercial and contractual relationships between trading parties. Trust as described here is at the core of business relationships, either in the trading partners you engage with, or the fiduciary and commercial networks that support day to day interactions.

It implies a confidence in the validity and viability of the commercial network, belief in the operating principles employed for establishment and resolution of issues around: authentication, authorisation, privacy, integrity, non-repudiation, reliability, warranty, fairness and legality. What's more it implies an operating reinforced by principles allowing for rapid, dynamic progression through the identification, negotiation, agreement and fulfilment (including settlement and escalation).

New models of Value assessment and Allocation must evolve

- Need for efficient mechanisms for
 - IP registration and recognition
 - Value Allocation
 - Financial instruments
 - Equitable process
 - Governance, Legal and Commercial Framework
 - Contract Negotiation and Settlement

A dynamic collaboration networks will, by design, generate new Intellectual Property by and on behalf of the contributing trading partners. Today's mechanisms for the identification, registration and resolution of IP are far too cumbersome to support the projected dynamism of the Collaborative Network. Of all of the base principles outlined so far it is the management, capture and allocation of value associated with IP that is most likely to inhibit dynamic Value Collaboration.

To overcome this limitation a Governance framework for participation in VCN's must serve as the means to provide a fair and equitable allocation of value related to contribution. It will be necessary to establish an equitable mechanism for dynamic IP valuation and allocation over time as any initial mechanism is likely to be established on the back of traditional, 'manual' contract negotiation.

Scenario

This example scenario looks at how a flexible, dynamic and often 'blind' network can form around a commercial opportunity to provide a timely competitive response to a request.

The scenario looks at the high level process that forms in response to the specific needs of the opportunity and how the physical capability and capacity of potential contributors are modeled to match requirements.

"Not2Loud.com" a newly formed music and media publisher are to support their launch with a 'Gadget' presented to key sponsors, clients, partners and media. To support this last minute marketing exercise a Tender Document is prepared posted to a 'Design Hub'.

Not2Loud.com (N2L) wants to arrange for the delivery, to a select list of 1000 people, of a device fashioned to promote the Not2Loud.com Company and capable of promoting Not2Loud.com as a new Industry Media publisher and distributor.

Unit price must not exceed \$225 - all inclusive.

Three days to closure on responses and the clock is ticking....

Players

The key players in this scenario are the client, as outlined above, this new media organisation are driving a launch into a highly competitive market that in it's own right is undergoing fundamental disruption as the Internet technologies it embraces disrupts the established revenue models.

We introduce a 'Design Hub'. Though ultimately this entity may migrate to a background role it is positioned in this scenario as a significant aggregator and broker of services for subscribed members.

The 'Designer' is an independent (or small organisation) subscribing to the Design Hub and looking to pick up on short-term opportunities to extend the portfolio of designs.

Other players involve the 'market' consisting of contract manufacturers, component suppliers, auctions, logistics, financial services, raw materials suppliers and various specialists.

The Scenario starts with the Posting by Not2Loud.com of their Request for Tender to the Design Hub, on the recommendation of their Marketing department.

1. Initiation

At the time of receipt of the posted request, the Design Hub 'knows' very little about the client Not2Loud.com (N2L). The first significant task performed by the Design Hub is the validation of the request and the requestor.

Services are invoked by the Hub validate that verify that the organisation exists. At this early stage a number of options are available. As Not2Loud.com are a new company, as yet privately owned with limited commercial history the Hub enquires of and receives notification of their financial and commercial status. This can consist of line of credit, credit rating, independent backing, details of executive officers etc. whatever is needed to validate and weight a decision on the level of support, and types of services to be offered.

Having received notification on the credit rating of N2L, Hub offers to post an escrow position of the funding, underwriting the risk and financing their operation at a cost of only 1.5%. The Hub also offers to supply a contract arbitration service based on the existing framework agreements held between the Hub and it's registered members. Federated Hubs covering the manufacturing, supply and fabrication capabilities carry equivalent contracts with their members so allowing for rapid arbitration and reconciliation of issues. This Governance, legal and Commercial framework quickly draws together and forms the operating framework for the tender.

Design Hub are 'trusted', they act as proxy for N2L to ensure a valid response from their design subscribers. As the Design Hub are trusted as an organisation, then any other organisation they introduce to their network inherits a degree of trust underwritten by the Design Hub.

Alternatives assessed in taking a risk position on this opportunity may have included an unsupported post of the tender, an option to offer higher escrow rates, offering additional financial instruments to fund the activity, or the requirement for guarantees from the backers of the Client amongst others.

2. Alert Posting

The next step for the Design Hub would include a detailed capability profile match with Designers and Design organisations to which it has access. Should no ideal match be found to the various parameters, then federated Hubs would be polled, as would large Corporate in-house design facilities where excess capacity is registered for external work.

Profile matching can include many aspects from a basic capability through to previous performance matching and 'reference lookup'. Where the Trust profile of the designer has a link to reference work previously completed the Design Hub can validate the capability rating of the designer when choosing who to distribute to (as opposed to a scattergun approach).

As designers may operate in different time zones different rules would apply when selecting the contact approach. Each registered designer would have indicated a preference for contact with suitable escalation parameters. E-mail may not receive an adequate response in time, in such circumstances further contact attempts via Fax, system generated SMS, Voice or pager messages would be invoked depending on preference.

3. Design Enquiry

the Designer house receives notification and evaluates whether to respond to the tender document. Assuming a decision to progress, without commitment to tender, is taken a number of simultaneous tasks are kicked off.

The designer decides that the look and feel of the 'Gadget' is to be based on the Not2Loud.com logo. Having access only to a low quality image, a request is issued back to the Hub, who operate as the Client's proxy, to access a copy of either a two dimensional or three dimensional logo registered to Not2Loud. (This will need to include a detailed specification of Fonts used, colours used and permissions for use).

As the designer receives a profile of the client in the original tender request, and this profile shows that the client is a music publisher and distributor, the decision is taken to fashion a device for playback of pre-recorded music shaped to reflect the logo received from the Hub.

No local catalogue of mechanisms for music playback are available. In interrogating the local catalogue and failing to identify a suitable part, the application invokes a search service which seeks out potential suppliers of music devices covering MP3 players, Minidisk players, CD players and as a backup, based on price constraints, audio cassettes.

At this stage Video playing devices are deemed too expensive (though the N2L business plans talk of video image distribution as aspirational). As a value added exercise a research enquiry is made to look into more 'off the wall' options such as PDA's or Mobile phones or equivalent convergent devices as an option.

This enquiry is routed to OEM's e.g. Sony. Philips etc, to generic product manufacturers and to specialist fabricators. All are identified through a service offered by the Hub.

A linked enquiry is a general request for information on an estimate for fabrication of a product case. This involves mould creation, material selection and cycle times which is routed to a list of fabricators identified by a federated small scale manufacturing and fabrication Hub that is in turn 'trusted' by the Design hub.

4a. Component Response

The response to the design hub request for a Logo image is that a 2D logo is returned with authorisation to manipulate to 3 dimensions and for retention only for the duration of the

enquiry. The colour specifications and fonts returned mean that only specific materials can be used for the fabrication of the case.

At this stage the designer has been unaware of such limitations on the case fabrication. A value added service offered from the Design Hub (or centre of Design Excellence associated with the Hub) informs the designer that there will be limitations on weight and usage. At this point the designer is made aware of a 3D modelling function for plastics materials that is offered as a service (pay on consumption) offered by a third party that would recommend a material based on the projected usage.

4b. Component Response

The physical link to the mechanism OEM's has returned parametric information about the product which will be needed in the later design stage. In contacting the component catalogues of the manufacturers the HUB has also added enquiries about capability and capacity to incorporate their product into a customised design. The value add here is that the mechanism manufacturers maintain long term contracts with a number of other fabrication and assembly companies, as well as their own internal 'servicized' capabilities. In this scenario there is a strong probability that the OEM is also in a position to respond to the RFP, and may well be doing so. The Privacy component associated with the trusted services ensure there is no 'accidental' leakage of design information between potentially competing parts of the same organisation.

Trust services offering anonymity, verification etc. are offered as an underlying 'infrastructure' capability to ensure fair play. By managing the enquiry on behalf of the Designer, the service provided by the Hub verifies to the component manufacturer that the designer to use this information is in turn 'trusted'.

Availability of product also includes logistics information. This includes capability to ship components to the final assembly point within the build and distribute phase of the project. At this stage it isn't known where the assembly will take place so an estimate is used.

One or more schematic component models are retrieved. To protect the manufacturers copyright and patents a 'cast' model is provided such that the detail is obscured. This model is translated by the HUB to the preferred format used by the designer and appears on their workstation.

In providing the response to this enquiry the manufacturer looks to existing inventory levels and allocations of existing production schedules. Where relatively high levels of available or excess inventory are anticipated by the Hub through historical market analysis, the option to source the components on spot markets may exist. To some, this might be the only option available and an additional service the Hub might make is to take a risk position in acquiring 'futures' in the components in question.

Where manufactured to order the capacity and capability of the mechanism manufacturer are modelled to return the optimum delivery schedule, for preferred manufacturers the option to provisionally reserve production is made to the Hub on behalf of the designer – to be held for

three days (or the duration of the Bid and decision process). All of the suppliers and trading partners for the mechanism supplier can be polled in providing this information.

Pricing may also vary depending on whether capacity is to be ramped up to achieve the requirement or can be met from projected production schedules.

4c. Component Response

Having the two parts of the Gadget in the schematic casing and the potential mechanism in a common format, the two are sent to potential casing manufacturers to ensure the shell has adequate fixing points for the mechanism. Physical parameters of the mechanism such as heat distribution, weight, power consumption (for frequency of battery change – or recharge) are made available to the fabricator to ensure a complete proposal.

The returned bid includes all costs minus shipment to assembly. In arriving at this cost the manufacturer has assessed capability and capacity models of all suppliers and trading partners.

5. Assembly

The final Bid process involves operating through the Hub to identify an assembly partner. In this case the Hub offers a trust service that ‘anonymizes’ the assembly bidders to protect privileged and sensitive price, capability and capacity information. The process executes comparative modelling whereby each candidate executes a capability and capacity assessment based on the design specification provided along with expected shipment arrival dates for the Case, mechanism and packaging.

At this point the a further value added service is included by the Hub that models such things as the expected import/export and localised tax implication of components vs. finished products. The final –to customer – shipment costs are added and the projected cost of each model option is created

At this point our designer has all of the components of the final proposal. The costs and timetables for the chosen device and an allocation for each production partner held on their behalf by the Hub which uses it’s position as a legal trading entity with adequate credibility and credit rating on behalf of the designer to hold the options until the stated final selection date.

6. Proposal

Final stage, all potential contributors have established their position and prepared their schedules to fulfil against the design proposal depending on the Clients decision. The proposal submitted includes a written estimate, contractual terms and conditions pre-agreed by the involvement of the Hub, a three dimensional model of the device in question and even a physical representation is required (through CNC modelling).

On completion and agreement the whole thing triggers. The production schedules of all parties are updated to fulfil against predetermined agreements. The Fabrication and assembly plants received production plans and CNC instructions to their equipment modelled by the services offered by the Hub and based on the capability model that represents them.

The finance is released to the Hub to hold for payment to all parties on successful completion of the transaction.

The product is made, distributed to the 1000 target recipients. On completion, each participant receives their allocated money based on the financial model created for this situation. **Exclusions and Summary**

This simplistic example looks briefly into one approach that may be modelled by a Value Collaboration Network. There are many similar, service oriented models that equally apply. Not included in the scenario and warranting further discussions are topic areas covering

- Establishment and operation of the Governance, Legal and Commercial Frameworks
- Intellectual Property issues
- Financial modelling
- Detail of the Trust mechanisms
- Relative positioning of a Hub vs. Dynamic brokering model of operation

This entire scenario is in fact feasible with technology that either exists commercially or is under development. This model of operation high highly dependent on the implied software architecture. It's fair to say that there needs to be a fundamental shift in the base architecture of many of the monolithic application architectures currently available which in turn implies fundamental change to the revenue models employed by the software vendors.

The power of the Value Collaboration Network model is that 'you can get there from here'. In other words it's adoption isn't dependent on discarding existing operating principles or their supporting business applications. There is a migration path for all of today's application tools including ERP, Supply Chain Planning, CRM, CI, Portals and Hubs.

Value Collaboration Networks are forming today. Technology is evolving at such a rate that many innovations around how VCN's will operate are only limited by the adoption rate for new business models. The imminent availability of Trusted e-services will accelerate VNC adoption dramatically making this approach to Competitive positioning the standard by which others are measured.