

VIVACE Third tier suppliers  
session – an initial example of the  
application of VIVACE methods

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# VIVACE

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Thank you Abdelmalek.

The last part of this session on the methods emerging from VIVACE, will focus on examples of the application of the methods.



## Objectives

**The objective of this session is to :**

**Provide some initial view of how VIVACE methods may be applied in a supply chain of the future, using**

- a) The themes raised throughout the rest of Forum 2**
- b) A view from smaller organisations operating product and service providers.**

**The information provided is an indication of the results from this research to date, ahead of formal deliverables being made from VIVACE.**

The objective here is to take the methods and themes that have been presented throughout Forum 2, but consider them in the context of smaller suppliers.

Once again the information is an indication of the results from the research, that will be verified, and provided as a formal project deliverable.

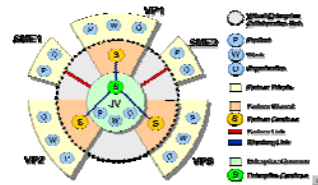


## Scenario

To support a new aircraft programme requires the supply chain to be mobilised. This requires new systems within the aircraft and a new engine.

The programme requires activity through the supply chain to define and model cost effective solutions, and introduce changes to products and services which will support the new product.

Concepts of working operations using VIVACE methods for ; suppliers of parts, technology services and Production services.



Throughout Forum 2, a storyboard approach has been applied that creates scenarios for the application of VIVACE techniques. These are all focussed around the development of

new products, be it aircraft, engines or helicopters, with the associated approaches for product optimisation and modelling, cost and business processes, or supply chain optimisation and management.

Hence we have a scenario where to support a new aircraft programme, requires the mobilisation of the supply chain to develop a new aircraft and engine.

This requires supply chain activity to develop cost effective solutions, introduce changes to products or possibly services which support the programme.

Within the programme there is a requirement to apply more collaborative engineering techniques, using VIVACE methods for design and make of parts. And Technical and production services.

To show this application we have taken the scenario for the view of design and make businesses, design and technical consultancy businesses, production supply organisations



## Design and make suppliers

Company 'X' SA is a European company that supplies insulation Solutions for both Aircraft and engines.

- They are an SME that competes in the sector.
- They have some new production equipment that means their insulation materials are now 10% lower in cost.
- Their design has to fit within the models provided by the aircraft and engine designers.

They have been advised to ensure they can operate by a Virtual Hub, with the required security and start the process by providing updates of their costs and lead times to the procurement function optimising the supply chain for this programme.

This scenario starts with a view from a fictional design and make Company X, an SME that designs and produced insulation equipment that are used on both aircraft and parts of the engine nacelles.

They are in competition with other suppliers, but they have new production equipment that allows material costs to be 105 lower than they have previously produced.

Their design has to fit within design models provided by both aircraft and engine companies, for the initial review and tender phase. They have been advised to integrate their designs and production data

by the virtual hubs created by their clients who are prime suppliers, and support the optimisation models that are used to support the clients procurement functions.

This requires them to understand and apply the security requirements to protect their IT operations.



## Design and make suppliers

Company 'X' SA already have some CAD licences that integrate with the Aircraft companies CATIA.

- They are given access to design data to assist the costing and initial process.
- If they are selected as insulation provider around parts of the fuselage and nacelles will require them to update their design proposals with the customer via the hub.
- Company 'X' will have to ensure their design information has the correct copyrights, and contract clauses to safeguard their IPR, and their cost data.

They also have to work to ensure they are providing design, and PDM data to the right formats for integration. Company X already uses the same design software as their clients,

So this part of the integration process is straight forward.

If selected the operations will continue by the hub, but they have to ensure within the contractual process that their IPR is safe that their production processes and costs are

Not exposed to possible rival companies. Hence they need to agree the way in which data is being used, and agreements on how data is presented so that the data

Important to their business is either not provided, or is used in such way that it is low risk to them.



## Design and make suppliers

Company 'X' would also receive engine heat installation information for the nacelle insulation design via the engine companies hub.

They have to update the supply chain MRP systems schedule delivery data via the hub, against the individual Aircraft delivery schedules.

To operate in this manner requires new processes to be developed and implemented for technical, commercial and production.

Company X also works similarly with engine companies, and they have provide and manage design and production MRP data via the hub.

Within the company it is recognised that this collaborative way of working means new processes are required for the control of data,

Its management with the client, and the review processes necessary to support the new programmes, and contracts. These have to be applied across all

Departments and hence required the quality technical and commercial management to work together and train the personnel involved.



## Technical solutions providers

Company 'AA' Ltd provides design and stress analysis work for Aircraft.

As an SME they are in competition with other businesses in the sector, and operate with a few second and first tier suppliers.

They do not have any virtual hubs, and are advised to position their personnel within Second tier, to gain access to the hub, and design models.

They set up the contracts and rates reflecting this with Company 'BB' Ltd which will last for this project.

However they and company BB are keen to extend the relationship, and options to hold costs at set levels against values of business are under review.

Company AA is an SME providing design and stress analysis capability for Aircraft, operating with a few first and second tier

Companies in the same country.

This is a highly competitive sector, with contracts from customers often only decided by cost.

They do not have access to any virtual hubs themselves, but have decided with this programme to set up contracts with a second tier

Company BB who are based a few kilometres away and have access to data hubs on another project so have some knowledge about this method.

They will co locate their people and apply the same software so have the required knowledge of tools and formats for integration. The integration means that they can manage

the design data and in particular design changes more effectively than before, where regular data drops added effort in defining the changes that have occurred during the clients

Design work over the past few weeks, ahead of new work actually being completed on the areas Company AA were working on.

This level of integration is seen as beneficial to both companies who are looking at further longer term relationships, which would allow them to set longer term

Service agreements against the value of business they complete.



## Technical solutions providers

Company 'CC' Ltd do high level modelling with the Aircraft Supplier and also work with Company 'BB' Ltd, who they contract this work through for the majority of their Aircraft projects.

Because of the integration of their role in the overall model Development process where they are involved with the performance and specifications of systems within the aircraft Structure.

They operate with a virtual hub and download design data to their own modelling software and integrate this data With the design work done by Company 'BB' Ltd by the Virtual hub.

- Company CC is a technology solutions provider that originated from a local University and operate as a systems analysis and modelling company specialising in hydraulics, operating with the aircraft prime on system concepts, and Company BB where the system is integrated with the design.

Because of their close work with the Aircraft designer, they are operating in an integrated manner which includes using similar software in many cases and data transfer via

a hub, which they also use when working with Company BB, however they also use their own modelling software developed with the University which is their own IPR

But has been refined to ensure the data outputs can be fed in to design models with the required formats.

The contracts they have therefore reflect the value they place in their modelling capability, and their software.



## Production services providers

Company 'DD' GmbH offering is focused on production to blueprints, with a special capability in the area of metal machining, assembly and test.

They have been working to grow horizontally (through acquisition of new production capabilities, e.g. in the area of surface and thermal treatments) and vertically, through increased capabilities on new materials and advanced manufacturing processes.

By accessing the collaborative hub they can expect to value their capabilities by contributing through their competencies to ensure better and faster industrialisation of aeronautical products, thus acquiring better competitive positioning with respect to competitors from low personnel cost Countries.

Company DD offers specialised production against blue print designs, and have specialised capabilities in metal machining assembly and test where this is required for

Valves and sensors. This has been recent investment which gives them some advantage in capability and process or test time.

They are looking to continue to grow horizontally by adding new process capabilities for surface and thermal treatments, and more advanced manufacturing processes and machinery.

They also hope by operating by collaborative hubs with their clients they can improve and increase their integration allowing faster processes, with more control of the technical data

Greater involvement and support of the optimisation process which they hope will give them a more strategic position with their main clients, and generate advantages over other

Build to print companies in lower cost economies.



## Production services providers

They further improve their management processes efficiency by accessing software solutions that implicitly conform to requirements and methods imposed by their customers and better transfer implications of those requirements and methods to their own suppliers.

Company DD is welcoming the enhanced visibility they have on advancement of projects, which allows for optimising their material procurement process and is expected to improve their warehouse management effectiveness, also in view of widening their target market to new sectors.

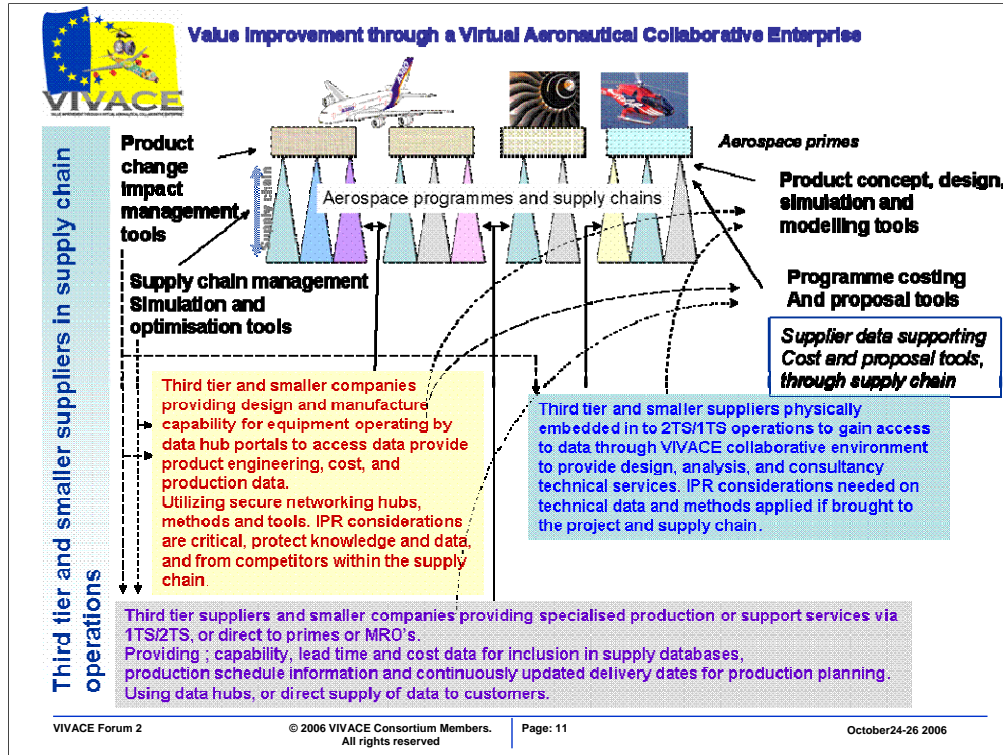
To generate this more integrated approach and hopefully the strategic advantages they wish to develop, requires not just capital investment in plant and processes, but also creating

Efficiencies in software for process planning and control, that allows them to conform to the requirements placed on them by their customers, and improved data transactions.

Company DD believe this also gives them greater visibility of customer schedule, capacity and capability requirements, supporting their production planning and most critically

their material procurement and warehouse management processes. This is important not just because of the impact of material lead times and prices but also because the process they have

Invested in provides the opportunity to target other market sectors.



This chart summarises our view on the methods from VIVACE that we are assessing currently, and gives a view as we have discussed on the types of supplier we have focussed on for design and make, technical and production based solutions.



## Summary and Way ahead

The ideas presented here show how smaller businesses may work in the virtual environment and supply chains of the future, where VIVACE type methods are applied. They try to indicate the physical, Virtual, and business collaboration methods that may be required.

The information provided has been an initial view based on the information available so far.

This has to be developed further over the final iteration of VIVACE, and verified prior to the final presentations and dissemination of information.

Thank you.

I hope the ideas presented are of use and that you may be able to relate these against the overall scenario of the new product development, and the role smaller suppliers play in the Industry.

The next phase of work will be a further iteration of analysing the work planned for next year, followed by dissemination of our findings from the reports we will be producing.

Dissemination will be at Forum 3, and hopefully other events that have to be decided with organisations such as AeroSME.

Thank you for your attendance I will take any questions you may have.

Can I now hand over to Paola Charini from AeroSME who will present the EC Framework 7 programme.