

# Open European Network for ENTerprise InnOVation in High Value Manufacturing (ENTOV-HVM)

## Case Study 1: “Winning the Bid”



Aerial view of the Hawthorne Works, ca. 1925 (See [https://en.wikipedia.org/wiki/Hawthorne\\_effect](https://en.wikipedia.org/wiki/Hawthorne_effect))

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# Case Study 1: “Winning the Bid” – The Challenge

## Problem

Jack works for a medium sized aerospace OEM and is responsible for an internal facility manufacturing various components in an 18 shift pattern with 1,000 shopfloor and 400 office staff. The facility is bidding against five other internal and three external facilities for an internal long term contract to manufacture components for a new product.

The sourcing decision will be made based on the lowest cost proposal and Jack suspects he needs to reduce his initially estimated cost by 50%. The only way to master this challenge is to implement a new manufacturing method of 150 operations across 45 machine types and special processes supported by new IT systems within 3 months of winning the contract and at a cost of 20% of the current proposal. In the past similar changes have taken at least 5 years and cost at least three times the initially proposed cost.

If his facility does not win the contract, Jack expects that he will need to reduce 30% of his shopfloor and office staff immediately and the future of the facility as a whole is threatened. Jack has heard of a new method called “innovation” webs to massively reduce the time (and thus costs) of designing, developing, implementing and diffusing the needed manufacturing methods and IT systems.

Jack has asked you to advise him of what he needs to consider in order to implement the “innovation web” approach for mastering the challenge described. After a discussion with a colleague of Jack at another facility you have prepared the map of a similar previous challenge that was resolved at another facility.

## Current Estimate

Assume the current estimate is structured as follows:

1. Bottom up estimate of implementing the required new methods of manufacture
  1. 30,000 man hours expert business resources
  2. 20,000 man hours consulting services
  3. €3M CAPEX / €250k annual OPEX
  4. 10% contingency is planned.
2. Project complexity is high.
3. The facility operates a turn-rate of 5 with approx. €300M sales annually.
4. Due to recent restructuring measures internal “grey beards” are few and far between and general staff mood is defensive.
5. The facility is located in southern Germany.
6. The mother company is located in central Spain.
7. Competition for new contracts is generally fierce and competitors know each other well.
8. The corporate aspiration is to be able to easily shift manufacturing load between multiple facilities.
9. The project would need to be funded by corporate central budgets and these processes are highly time consuming.
10. The facility was bought by the mother company 10 years ago. For the 25 years previous to that it had belonged to another aerospace company in the same country. For the 50 years previous to that it had belonged to large national company active in multiple industries.
11. The design and manufacturing engineers in the facility belong to the best in the world for this type of manufacturing.
12. Note that funding for change measures is approved centrally and drawn from the facility budgets.

# Case Study 1: “Winning the Bid” – Guidance

## Challenge

“Jack has asked you to advise him of what he needs to consider in order to implement the “innovation web” approach for mastering the challenge described. After a discussion with a colleague of Jack at another facility you have prepared the map of a similar previous challenge that was resolved at another facility.”

## Expectation

Jack runs a manufacturing facility and needs specific actionable interventions in order to reduce his estimate and then deliver on the “promise” if he wins. He expects the previous innovation web success story to be used as the basis for these recommendations.

You should make no more than five (5) recommendations which represent changes to the previous success story and can be visualized in the map.

## Potential Types of Recommendations

1. Discover the local innovation web story
2. Accelerate the innovation web story
3. Implement game changers in the innovation web story
4. Reduce the uncertainty of actions
5. Design changes to align with the innovation web

## Presentation

You will have 45 minutes to prepare in groups of 2-4 and then 3 minutes to present your recommendation. Your presentation will be graded by peer teams and the highest scoring team wins.

## Dimensions of Exploration – The Example Success Story

Innovation webs are primarily described by 13 interdependent indicators. Focusing on these and creating a high level dependency model can be helpful when searching for ways to improve performance.

1. Resilience (Quantitative) - The ability to return to an archetype after an incident
2. Reciprocity (Quantitative) - The extent of “return” transactions between roles.
3. Agility (Quantitative) - The ability to adapt to changing external conditions.
4. Structural Integrity (Quantitative) - The number of alternate paths for value creation.
5. Structural Dependency (Quantitative) - The intensity / density of exchanges.
6. Complexity (Quantitative) - The number of relationships between roles.
7. Emergence (Quantitative) - The probability of unexpected self-organization.
8. Maturity (Quantitative) - The average length of relationships of participants.
9. Perceived Value (Qualitative) - The benefits participants attribute to deliverables.
10. Value Creation (Qualitative) - The intellectual and financial capital created by roles.
11. Value Consumption (Qualitative) - The intellectual / financial capital consumed by roles.
12. Cost Benefit (Qualitative) - The delta between value creation and consumption.
13. Sequence (Qualitative)- The speed of transfer for deliverables.



# Case Study 1: “Winning the Bid” – Support & Additional Challenge

## Support

- 1. ENTOV-HVM Sourceforge Project** (<https://sourceforge.net/projects/entov-hvm/>) – The download section contains extensive toolsets for exploring and serving innovation webs from a more generic value networks perspective.
- 2. ENTOV-HVM Blogsite** (<https://open-european-innovation-network.blogspot.com/>) – The blog contains extensive posts describing innovation systems, in particular (a) The Living Systems Molecule <https://open-european-innovation-network.blogspot.com/2019/12/the-living-systems-molecule.html> (b) The Narrative for Generic Diffusion of Innovation <https://open-european-innovation-network.blogspot.com/2020/01/the-narrative-for-generic-diffusion-of.html> (c) Research Web <https://open-european-innovation-network.blogspot.com/2019/06/exploring-first-innovation-web-research.html> (d) Socialization Web <https://open-european-innovation-network.blogspot.com/2019/06/exploring-second-innovation-web.html> (e) Market Validation Web <https://open-european-innovation-network.blogspot.com/2019/06/exploring-third-innovation-web-market.html> (f) Commercialization Web (g) <https://open-european-innovation-network.blogspot.com/2019/06/exploring-fourth-innovation-web.html> (g) ADI-HVM One Page Overview – the Living Innovation System and the DNA of the Idea <https://open-european-innovation-network.blogspot.com/2019/11/adi-hvm-one-page-overview-living.html>
- 3. ENTOV-HVM Website** (<https://www.innovation-web.eu>) – The literature and download sections contain extensive additional resources and guidance.
- 4. ENTOV-HVM LinkedIn Group** (<https://www.linkedin.com/groups/8779542/>) – This group of highly passionate web weavers may be helpful in giving subject matter guidance to your explorations.

## Additional Challenge

Innovation webs are best described through a series of performance indicators as discussed in the COST proposal (available in the downloads section of <https://www.innovation-web.eu>). The below image is a radial polar force field representation of these indicators (for detailed explanation see Schwabe, O. (2018) A Geometrical Framework for Forecasting Cost Uncertainty in Innovative High Value Manufacturing. PhD Thesis. Cranfield University. Available at: [https://dspace.lib.cranfield.ac.uk/bitstream/handle/1826/13616/Schwabe\\_O\\_2018-%20FINAL%20CORRECTED.pdf?sequence=1&isAllowed=y](https://dspace.lib.cranfield.ac.uk/bitstream/handle/1826/13616/Schwabe_O_2018-%20FINAL%20CORRECTED.pdf?sequence=1&isAllowed=y) .

Additional Challenge: Determine the indicator values for the example and recommended innovation webs in this case study and discuss their interdependence using co-variate and / or geometrical analysis. Which indicator or combination of these suggests „tipping points“ for disruptive acceleration of value creation?

