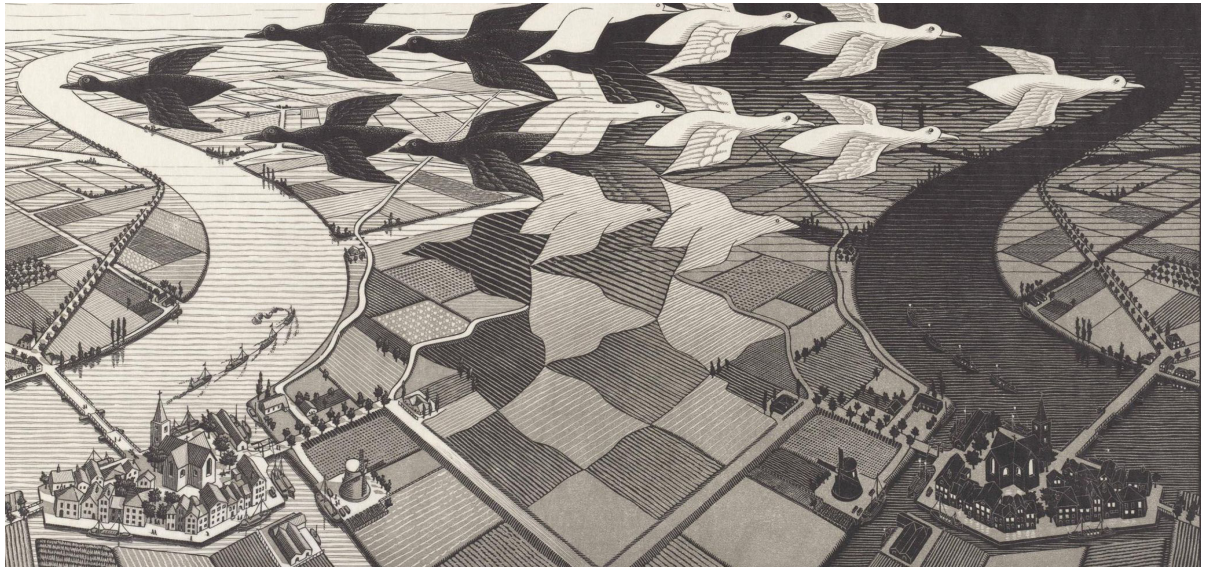# FROM INTENTION TO COMMITMENT: FORMALIZING NETWORK COLLABORATION ON DATA SCIENCE WITH A STRATEGIC AGREEMENT

DMI (RNLNavy), Damen and RH Marine have been exploring a collaboration around data science, with the shared goal of developing innovations to optimize the maintenance of maritime assets at the lowest total cost of ownership.[i]

M.C. Escher's 'Dag en Nacht' (1938) © the M.C. Escher Company B.V. All rights reserved www.mcescher.com

Until now, the collaboration has been based on trust through prior collaboration and a verbal statement of collaboration between the three parties. From the start of the data science collaboration, the aim has been to formalize the cooperation by means of a strategic agreement. But how does such a formalization process work? How can the strategic agreement pave the path towards successful data science subprojects? Such a change trajectory may remind us of Escher's inspiring art of transformation.

In 2020 Q2, one year after starting the collaboration and the conversation about this formalization, the parties are close to signing a binding agreement. MARCONI[ii] Work Package 2 conducted interviews with representatives of DMI, Damen and RH Marine – separately at each organization – to explore the purpose of the agreement and the key challenges and success factors during its formalization process.

PURPOSE OF THE STRATEGIC AGREEMENT

Representatives of DMI, Damen and RH Marine in essence agree on the purpose of the strategic agreement: it is a written, formal promise that the three organizations will collaborate on data science. However, the extent to which the representatives consider the agreement as delineating concrete and strict arrangements somewhat varies. Whereas some of the representatives see the agreement more as a strategic promise specifying a research agenda,

others conceptualize the agreement as a blueprint to specify the resources that partners bring into the data science project. Moreover, it would assign responsibilities and align IP (intellectual property) interests. So how did the partners synchronize their partially different views? Which challenges did they have to overcome?

KEY CHALLENGES

Taking more than a year, the process of formalizing the collaboration into an agreement proved more complicated than parties anticipated. Four challenges explained this lengthy trajectory.

1. The lack of a concrete business case: how to legitimize still-emerging opportunities?

Data science is unknown territory for the partners, which makes it hard to formulate a clear business case – i.e., an outline of concrete projects within the data science collaboration which would include an overview of their expected costs and benefits. As long as there is not yet a concrete business case, it is difficult to obtain internal support and funding for the representatives of the commercial organizations and to make the agreement explicit. On the DMI side, however, arranging for a concrete business case is a time-consuming and carefully managed process with many organization units within the Ministry of Defense involved.

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2. Finding collaboration equilibrium on uncharted territory: how to agree on collective value?

Data science, like many digital innovation topics, is relatively uncharted territory for DMI, Damen and RH Marine. Therefore, it is difficult to anticipate and align the collective value created: DMI, as a governmental organization, needs to assure compliances with political agendas and societal goals. In contrast, the two commercial partners may need to arrange on potentially different or conflicting commercial objectives. The partnership of these companies in the Dutch maritime ecosystem around the RNLNavy is not self-evident abroad, where they may well have to compete for business. All parties need to be satisfied with what they invest and expect to gain in return … with multiple arenas in mind.

3. Differences between organizations involved: how to deal with heterogeneity?

The partners that are involved in the data science collaboration are different in aspects such as size, focus, public/private and position in the value chain: one partner may be more focused on R&D, another on production or maintenance. As a result, the representatives have varying frames of reference concerning data science. They may bring in different suggestions, skills and motivations emanating from their organization's core focus. Representatives from an organization that focuses on maintenance are likely to envision different outcomes from a data science project compared to representatives from an organization that focuses more on production. This makes coming to an agreement challenging: organizations with different size, agility, culture, innovation processes, time frames and decision-making styles need to be aligned.

4. No cooperation without a fair distribution of value: how to ensure equal gains when resources and benefits are difficult to compare?

An equal distribution of value (benefits vs. resources commitment) relative to the other organizations is a precondition for the partners to proceed with the collaboration. Conversely, disbalance occurs when partners contribute the same amount of resources but one enjoys much higher value than the others. However, the data science project involves intangible resources, activities and benefits that are difficult to quantify and compare. As a result, it is challenging to objectively establish what amount of resources all partners bring in, and whether they enjoy a fair amount of created collective value. For instance, how do you assess whether the anticipated goals of improved availability of the ships (DMI) and external market opportunities through products development (Damen and RH Marine) are equally achieved?

The following dilemma summarizes the challenges:
No resource commitment without a business case but no business case without upfront resource investment for identifying opportunities and risks.
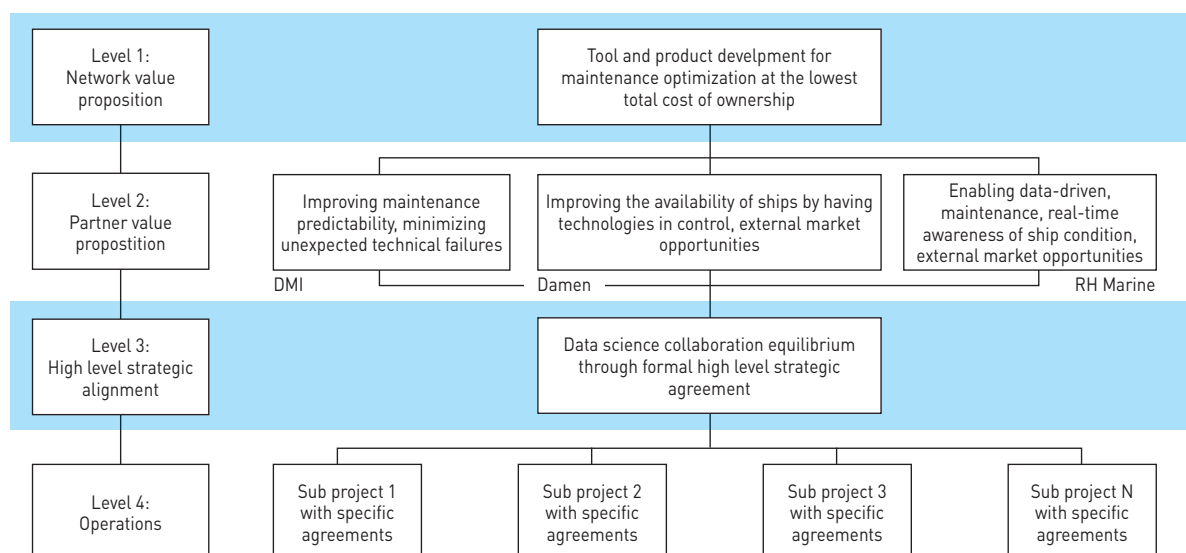

So, how did the MARCONI partners address approach this dilemma? How to successfully formalize the innovative collaboration to achieve the network value proposition of optimizing maintenance for the Navy's assets at the lowest total cost of ownership … despite differences in the partner's individual value propositions? How did the overcome the challenges?

ALIGNING PARTIES WITH THE STRATEGIC AGREEMENT

The partners view the strategic agreement as an umbrella that provides a framework for future subprojects leaving room for elaboration later on. Hence, the agreement is a crucial intermediate step towards the implementation of specific subprojects with organisation specific pay-offs. For these subprojects, separate, custom-made contracts will be arranged. Delegating specifics to subprojects, this puts less pressure on trying to achieve the impossible: an all-encompassing, future-proof strategic agreement.

The strategic agreement aligns interests, specifies interdependencies, and assures upfront mutual investment to explore and identify specific projects. The innovative and explorative character of the data science project makes it difficult to determine upfront specific payoffs. The agreement helps with dilemma that financial and human resources are needed to speed up the innovation process but especially for the commercial partners, obtaining more resources for the data science collaboration is difficult without a clear overview of benefits and costs.

The following figure shows the role of the strategic agreement in bridging between the strategic and the operational level.

Level 1: Network value proposition	**Tool and product develpment for maintenance optimization at the lowest total cost of ownership**	
Level 2: Partner value propostition	Improving maintenance predictability, minimizing unexpected technical failures	Improving the availability of ships by having technologies in control, external market opportunities	Enabling data-driven, maintenance, real-time awareness of ship condition, external market opportunities
	DMI	Damen	RH Marine
Level 3: High level strategic alignment	**Data science collaboration equilibrium through formal high level strategic agreement**	
Level 4: Operations	Sub project 1 with specific agreements	Sub project 2 with specific agreements	Sub project 3 with specific agreements	Sub project N with specific agreements

We now look into more detail into the key success factors.

KEY SUCCESS FACTORS FOR MAKING FORMALIZATION OF INNOVATIVE COLLABORATION A SUCCESS

The members increasingly feel the competitive pressure to deal with this issue as the data science collaboration has progressed. Similar to the 2015 service alliance between DMI and Thales,[iii] the partners have now taken the first step to resolve the dilemma by finding an initial collaboration equilibrium through drafting a strategic agreement. It echoed the strategic core of their interests and enabled refined tactical-operational level contracting and project management later on.

Representatives from DMI, Damen and RH Marine pointed out several factors that are essential in the process of reaching a formal strategic agreement:

1. Maintain trust: leverage communities
The trust that has been built up through the long-term relationships between the parties involved is essential to the viability of the data science project. Being part of the Dutch maritime B2B and B2G ecosystem and communities, representatives have known each other for years, making for a highly efficient communication milieu. Trust is maintained by having installed a steering committee with representatives from each organization and by being transparent to one another. A potential challenge in maintaining this level of trust could occur if one party is not included in a subproject between the two other organizations.

2. Ensure orchestrating role of the launching customer
DMI constitutes the vital link in collaboration within the Dutch maritime ecosystem. As a launching customer and with a long-term commitment to maritime business [5], DMI's involvement and dedication towards the data science project provides legitimacy and reassurance for Damen and RH Marine to dedicate resources as well.

3. Realize the shared need to collaborate: national success for international competitiveness
The representatives from the commercial partners are not only convinced of the potential win-win-win in the data science project. They also argue there is a necessity to collaborate on data science because of mounting pressure from foreign competitors engaging with data science on a large scale. Foreign competitors are investing more (financial) resources in data science, which the commercial companies cannot match individually. Therefore, these types of innovative collaborations become even more critical to keep a competitive advantage. Partners interlock their agendas: commercial urgency can be hooked up with the RNLNavy's ambition and elaborated strategic journey to incorporate data science in its upcoming new ship projects.

4. Go light: limit paperwork
An earlier version of the strategic agreement contained a paragraph on intellectual property (IP) for each subproject that would be carried out within the data science collaboration. This paragraph was deleted later to prevent the collaboration from becoming too bureaucratic and slow. Instead, this topic is delegated to the subprojects. Such rescoping of the strategic agreement renders it more strategic – connecting visions – and thus contributed to its success. When future subprojects face challenges, parties can revert to the strategic agreement.

Conclusion:
Strategic Agreement as a necessary stepping stone towards innovation implementation

iii https://marineschepen.nl/nieuws/Intensieve-samenwerking-Thales-en-marine-231116.html
5 https://www.rijksoverheid.nl/ministeries/ministerie-van-defensie/contact/zakendoen-met-defensie/defensie-industrie-strategie-dis

The strategic agreement is the tangible outcome of the convergence about Data Science collaboration between the network partners. Convergence among public and private organizations is a complex process of developing trust, relational capital and a shared language. The strategic agreement is necessary as an intermediate step and provides 'minimal though essential' structure for projects.

The contract includes shared agreement on the collaboration purpose and goals, resources to be dedicated, a general research agenda, descriptions of bodies (e.g., steering committee) and IP arrangements.

Next to the content structure, partners should align on the following issues about the role of the strategic agreement:
• Level of specificity: ranging from generic, uncommitted, intentions and high flexibility to specific, committed project program and predictability
• Types of commitments: being input (e.g., resources to contribute), process (e.g., collaboration mechanisms) and outcome (e.g., deliverables);
• Agreement dynamics: formal and informal ways to periodically reflect and revise the contract.

The right decision on these issues are crucial since they determine the necessary space for the innovative sub-projects AND the dedication of the partners to the collaboration.

Setting a strategic agreement between the various partners represents a key capability of the MARCONI. Like in mountain climbing, it secures the group's first steps of the journey to the top.
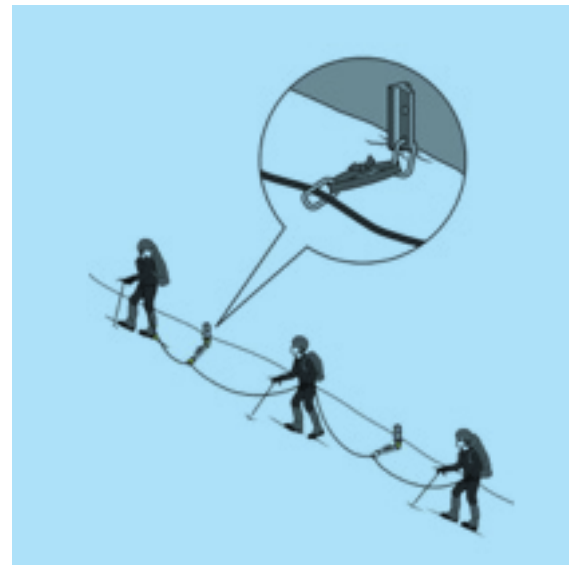
The key success factors such as high level of trust between the organizations, the proactive role of DMI as the launching customer, shared need to collaborate on data science and limitation of paperwork allowed the collaboration to overcome the first hurdles and formalize a strategic agreement.

As the next steps, the network now looks forward to realizing data science sub-projects, which include specific agreements within the boundaries of the strategic agreement.

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