

The ARI (Accelerated Radical Innovation) Methodology

What is ARI?

The ARI methodology should be adopted by any research team that wants to accelerate a radical innovation to market commercialisation.

Led by the ARI project leader, (usually the project manager), ARI is designed to include the whole innovation team, but guided and led by a project member with a holistic view of the project.

Accelerated Radical Innovation (ARI) is effectively a set of advanced tools based around a methodology that can very much be described as Open Innovation.

Open Innovation can be described as the purposive inflows and outflows of knowledge to accelerate internal innovation and expand the markets for external use of innovation, respectively¹.

Open Innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to markets, as they look to advance their technology¹.

It is in this context that ARI has been developed, since proposal of the initial ARI vision at a major innovation conference and workshop in Charleston, SC, USA in May 2004.

To summarise ARI we can look at clear examples from history. The whole purpose of ARI is to deliver in under 6 years what would usually take over 15 years.

If we look at Nuclear Energy, this would have been unlikely to have been operational by the 1950's on a mass scale if the Second World War had not pushed researchers to develop the ultimate weapon, i.e. the atomic bomb. Under extreme pressures and complete buy in from all involved, innovation can be delivered in an exceptionally short time frame, compared to the average 60 year time frame for major technology revolutions.

This is one of the key philosophies of ARI. ARI will not work unless the whole organisation has buy in, to radically change the approach to research from a linear, internal structure, to an open and spherical structure that has many paths back and outside influences.

ARI will also not work unless the philosophy of Open Innovation is bought in too.

¹ Open Innovation, Oxford Press, Henry Chesbrough, Wim Vanhaverbeke, Joel West, 2006

If this is successfully executed it seeks to reduce time and cost by a magnitude of 6 to 10 compared to the nominal 60 year period for major technology revolutions. The key tools in this process are rapid information retrieval, pattern recognition, knowledge management and real time decision making.

The methodology is very simple. It is an advanced set of risk management analyses at a very early stage, but crucially has the philosophy that companies should be willing to take the risks identified, or accept that their "big idea" is a non starter in its current form.

The ARI Methodology is a ten step guide to commercialisation and effectively front loads the project with an advanced form of risk analysis. As each step is worked through in the guidebook, answers are filled in, in the ARI Answer book. This answer book is far more than just a book of answers, it also allows the users to be guided through each step and to interpret and fully understand and exploit their answers. At the end of each step is also a "Status Analysis". This methodology is described in a separate work book to the guide book, but has the ability to place an innovation in the business spectrum. As this is filled in as the project progresses it allows a business road map to be developed. This is done through not only analysing the answers that have already been given , but also identifying quite easily, what areas of there project remain to be solved, thus allowing a concise work plan to be represented to potential investors.

How Did the Methodology Develop?

The work through the White Rose HIP has been to help develop and apply the ARI Methodology. Much of what has been described above has been developed since November 2007.

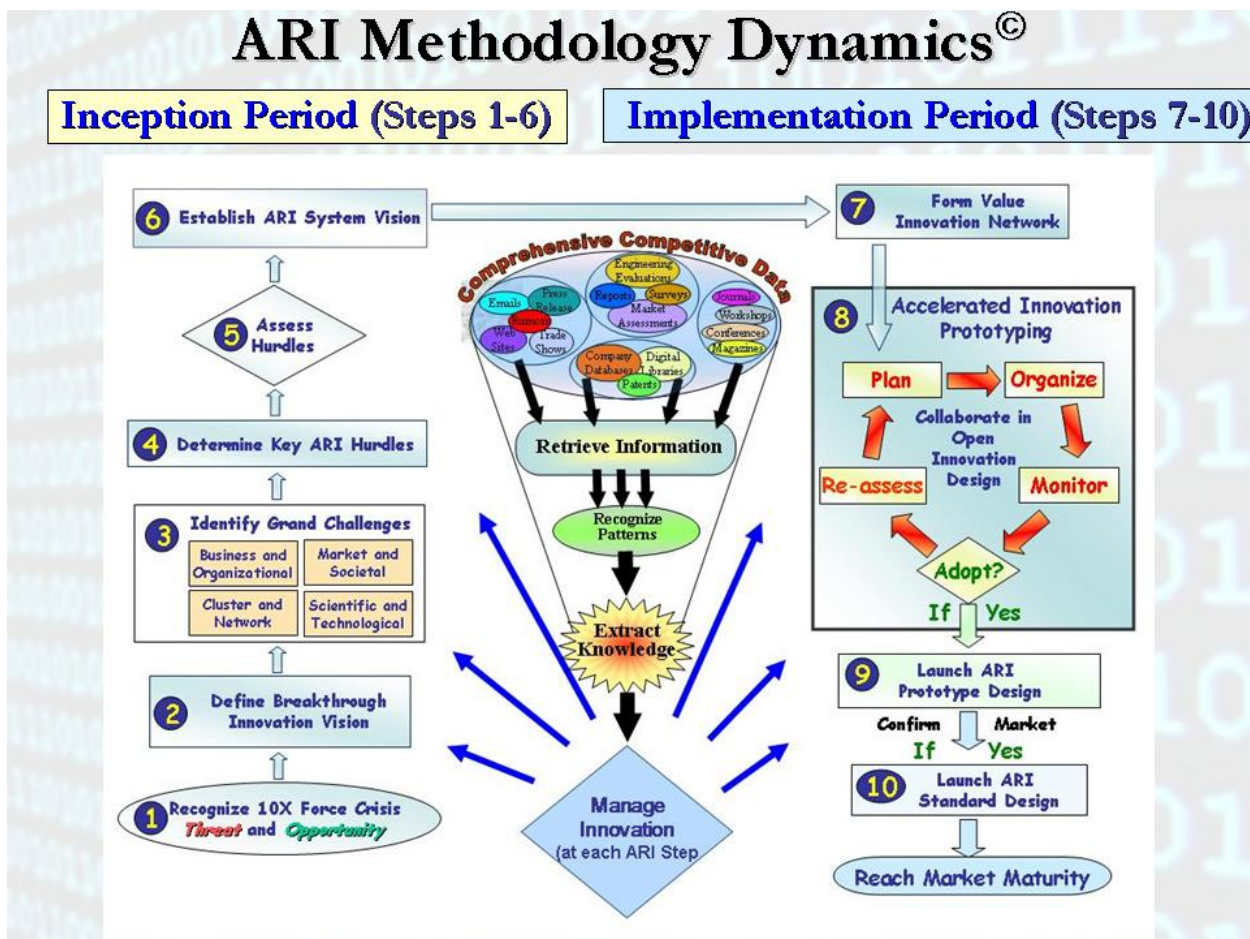
The original ARI methodology had developed through an academic basis of theory and had not been applied to any fresh projects when this work was started through WRHIP.

One of the first tasks was to simplify the methodology into a workable system. Having reviewed and completed this, the WRHIP project met with our American partners to develop what became, second generation ARI (2GARI).

The advantages of this newly developed methodology allowed a far clearer and succinct process that was in a much cleaner diagram, which is shown below.

This created a guidebook and then as part of the new generation a status system work book. The status system workbook was an extremely advanced development. It allows the project team to assess at each stage where the project sits in a business path and what is needed to work towards a status that will allow an investment proposal to be put to business.

The added complication of this advanced stage led to an answer book being developed. However, this is far more than just a place to write your answers. The basis of the answer book is to guide a team through the process. It analyses the questions and procedures that arise at each stage in the guidebook and methodology and then asks questions that will help prompt a team to be able to move the project forward when it gets stuck.



The advantages of the answer book, is that it allows not only a record of answers, but also the reasoning and decisions that were taken to reach those answers. This is an important aspect of any Open Innovation project. It is often the case that those who hold the purse strings can not always see the advantage of investing in an open innovation project. Having a complete and accurate record of why a project is worth continuing allows a much more efficient path to success that is immune to changes in personnel.

Therefore ARI developed into a new generation of methodology that allowed a concise model to be completed that had an advanced status analysis technique in it, all brought together in one user guide/answer book.

Of course it should be noted that a project team will still need to use the answers from the book to their best advantage, at the right time!

The ARI workbooks can be found at:

www.wrhip.org under the archive tab in the documents file

How Has ARI Been Applied?

Initially the ARI methodology had been applied to projects that had taken place in the past and had shown where aspects of ARI were relevant. This was written up in the original methodology that came from University of Toledo, but the fact remained that ARI had never been applied to a new project. To a certain extent this still remains the case, however, some of the ARI steps were applied to a White Rose HIP project.

Due to the late start point of ARI, it was not possible to apply the methodology to a project that had yet to start, however we were able to identify a project that had identified the risk/opportunity for an idea (step 1) and had done some brief studies into how key figures of merit would be improved (step 2), but not to the depth that you would if applying ARI in full.

Therefore a meeting between the ARI team and the project took place to identify and analyse step 3, 'the grand challenges'. This offered two insights.

Step 3 is a set of analytical questions that covers four major areas of innovation, namely:

- Business and organisational
- Market and societal
- Cluster and network
- Scientific and technological.

Therefore the analysis with the WRHIP project evaluated the projects strengths and weakness and highlighted areas of research and major hurdles.

This particular analysis highlighted that overall the project could be delivered and that the weakness lay in the scientific/technical side of the project. This reinforced the methodology as this was exactly where the main 'grand challenge' was as the whole commercialisation was based on getting the scientific side of the project to work.

The Step 3 analysis not only identifies the weaknesses, but also explains why this particular area is a weakness. This allowed the ARI team to carry out the in depth literature search that is a major part of the ARI methodology. The 'Comprehensive Competitive data search allows the masses of readily available information to be fine tuned down to just relevant knowledge. In this case the knowledge search also confirmed that the project was indeed a unique proposal with strong commercialisation potential.

The first step in the ARI process was also applied, using the answer book, to the WRHIP project. This allowed us to prove that the method laid down in the answer book was easy to use and would indeed help define a project. Of

course it would be expected that the methodology would be used at the very beginning of a project, using Step 1 to decide whether a project was properly identified in the first place, but nonetheless it was an useful exercise to assess the ease of use of the answer book.

What Work Remains

The major work that remains on the project is two fold. Having brought the methodology to a new generation with advanced answer books, guidebooks and assessment tools, the methodology now needs to be applied to a project from the start.

The proofing of the steps for the existing WRHIP project was not carried beyond the work described above as the project was so far advanced that it would once again be simply fitting the methodology around work and projects that had already progressed or even where reaching commercialisation stage.

Therefore future work for the methodology is dependent upon gaining funding that will allow the partnering with an industrial project proposal, to prove the methodology in the field from the beginning. However, in order for the methodology to be truly successful the methodology will need to be put into an interactive format.

The completion of the ARI answer book certainly made the whole methodology much easier to navigate, however, it has resulted in a massive document that could appear daunting at first. There are also areas that need to be re-summarised, going back over previous answers and of course there would be just the one copy for each project.

Therefore the most important development of the methodology from this point, is to develop it into an interactive tool that would have the advantages of not appearing so daunting, updating summaries automatically and being accessible remotely by any member of a project team with clearance.

Therefore, the White Rose HIP work on this methodology has seen us apply some of the techniques to an existing project, tidy up, simplify and provide navigation tools as part of an overall tool kit and has left a clear route of further work, that will allow commercialisation to take place of the methodology.