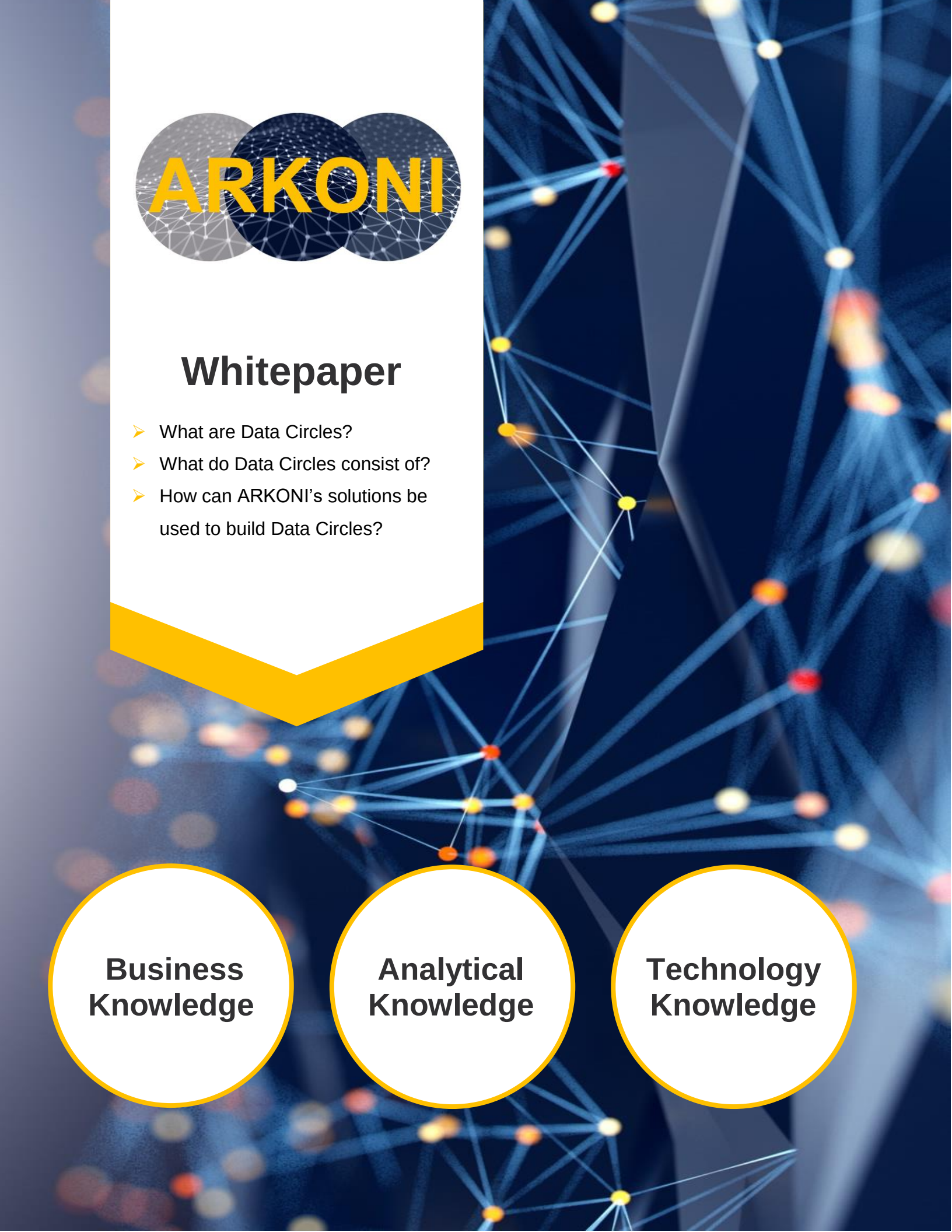
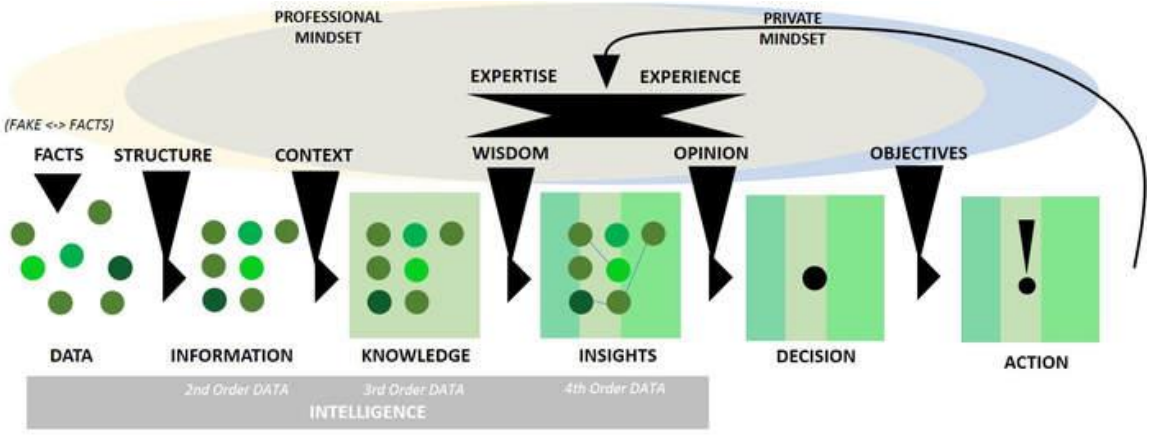

ARKONI
Whitepaper
What are Data Circles?
What do Data Circles consist of?
How can ARKONI's solutions be used to build Data Circles?
Business Knowledge
Analytical Knowledge
Technology Knowledge

What are Data Circles?

The theory about data driven cultures, data-centric approaches or data minded organizations is considered novel and innovative. However, the fact that the methods and effects are unknown, is considered a problem. At ARKONI, we decided to develop a method based on comprehensible theory and can be used in different environments.

“Data-centric approach”, “Data-driven”, “Digitalization”, “Industry 4.0”. Numerous key words have been used in the last decade to explain the same theory: “The transformation from analog to digital, and creating useful insights using data.” However, these theories do not explain how to transform your company from analog to digital and how to develop insights from data. The complete journey from analog to useful insights using data, is captured in a concept called Data Circle.

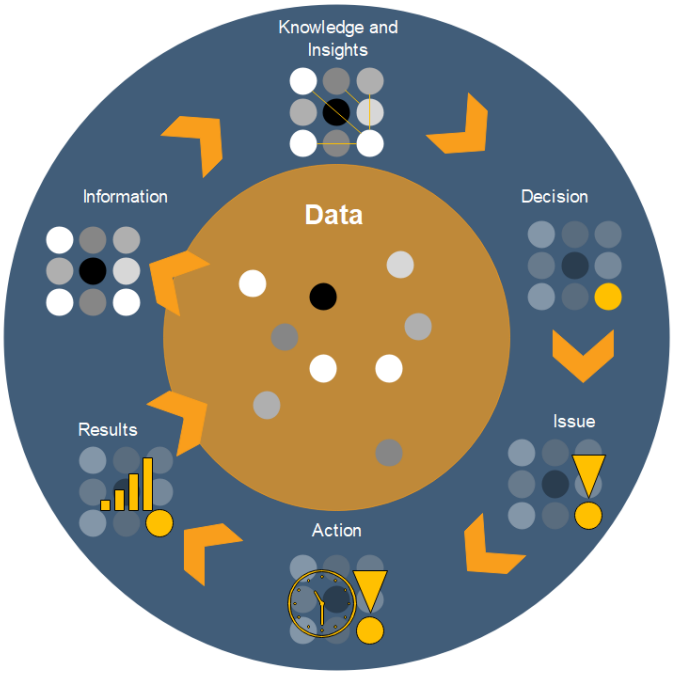
The Data Circle is a new concept that is considered revolutionary but understandable. This concept is based on the theory called “Decision Intelligence” from Dr Roger Moser (2018). The Decision Intelligence explains how unstructured data, such as process data, can be transformed into actions, such as process improvements. It all starts with getting access to unstructured data. In a production company, unstructured data comes from machines, processes and all kinds of different information flows. To transform this information into knowledge, it needs to be structured and put into context. Knowledge can develop into insights after adding wisdom and opinions, and objectives are able to transform these insights into actions. All the transformation steps can be seen in the framework below.



These transformation steps will be challenging for production companies, because it is not within the scope of their primary objective, production. Nevertheless, in the upcoming years it will be crucial for production companies to improve their production processes. The key to their success is already in their facility, the data is just not yet transformed into actions.

The difference between the theory of Decision Intelligence and Data Circles is the way these actions are managed. The addition upon the Decision Intelligence steps is bringing the information of the desired action, to the right person, at the right time. It is common for production companies to have an engineering department responsible for maintaining product and production processes. But how does the engineer act when insights of data analytics suggest that a production process needs to be changed? Are processes in place to ensure changes of different processes?

Still, the data is only useful when the actions, such as process improvements, are managed and transformed into real-time information at work floor level. To ensure this, actions are added to the data circles. Another addition to the existing framework of Decision Intelligence, is logging the results. This is necessary to ensure that the model can be used to repeat this process. The different transition steps of the Decision Intelligence are pure theoretically, but to make it more practical, the data circles are converted into methods to benefit the different transitions.



What do Data Circles consist of?

The data circles at ARKONI consist of six components. At first, the transformation from data to useful insights starts with a data source. This data source can be a database, an ERP-system or a production machine. For example, the data source that can be selected is production data. Though, sometimes it is desired to combine various data sources to create useful insights.

Step 1: Select a data source

The second step is to add business knowledge to the data. For example, we select two different data sources, production data and quality data. We can add knowledge by joining the two different sets on the name of the articles. The analyses that can be done is which products are poorly produced and need some extra attention when produced the next time.

Step 2: Add business knowlegde

Eventually the third step is to reduce the amount of data. Ben Feringa (Nobel-prize winner) stated: “The power is not to have all the data; the power is to know which data can be ignored.” It is impossible to do everything at once. The data generated in production companies is not only hard to access, but is also overwhelming in amount and complexity. When the engineering department has to maintain the product data for 100+ products, the amount of data increases dramatically.

Step 3: Pick interested items

When the items are reduced into manageable numbers, it is important to create issues for the responsible departments. An issue is mentioned as a problem or an idea that can be sent, managed and viewed by departments. For example, when the engineering department is triggered by issues concerning 5 products that are poorly produced, the engineer can focus his/her work.

Step 4: Create issues to enable process changes

One of the main concerns of using data to create useful insights is the communication with the work force. When the engineering department found the solutions for improving the 10 products with quality problems, the production employees have to be notified. Nowadays, this is often done by e-mail. The problem of poor communication between the office employees and the production employees needs to be tackled to ensure the solution. Therefore, the fifth step is to not only to inform the production employee about the process changes, but also to inform the employee at the right time.

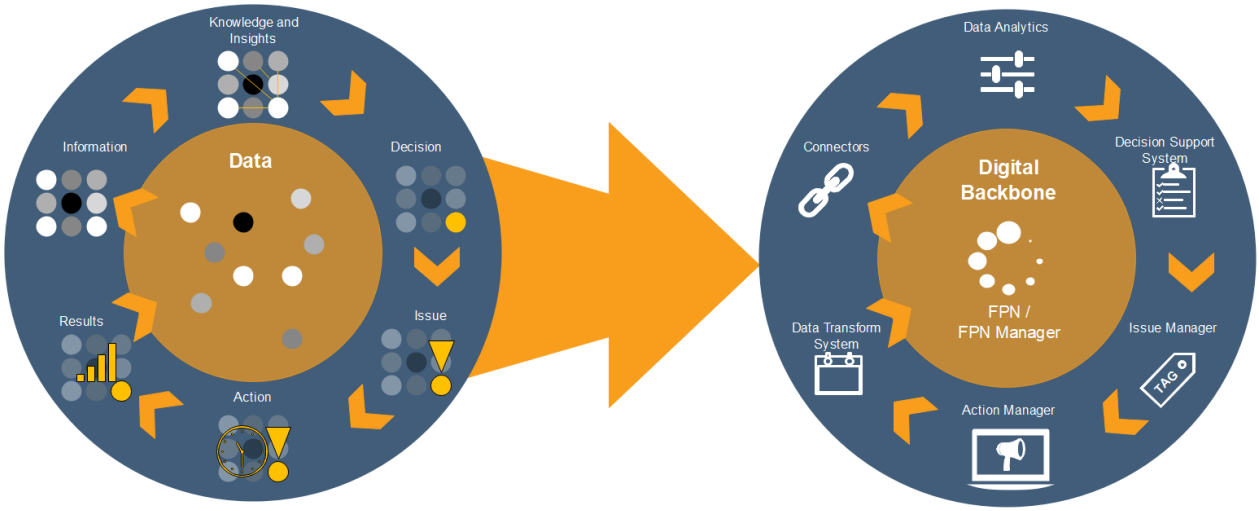
Step 5: Activate process changes on workfloor level

Eventually, the transformation needs to be logged, evaluated and managed. The results of the process changes can be analyzed with the same six steps. The data circles are not created for single use, but are made to work continuously.

Step 6: Log and evaluate results

How can ARKONI's solutions be used to build Data Circles?

The data circle consists of six transition steps that transform data into real process changes. The first step of the decision intelligence framework is transforming the data into information by structuring the raw data. That is only possible when the raw data is available and present. Production companies are still struggling with obtaining all their data from different sources, such as machines or ERP-systems.



ARKONI provides an Integration Platform that enables companies to obtain real-time data from all their data sources. To create structure into the different data sources, ARKONI provides a low code platform that can be used to create pre-defined datasets that facilitate to re-use data over and over. The business knowledge and insights can be included in the data, using the same low code platform.

Also, ARKONI provides different applications to support the transition from data to actions. The Decision Support System is such an application that can be used to choose the interesting items. All the solutions from ARKONI are explained in further detail on www.arkoni.nl.