

The Data Analytic Capability Wheel: An Implementation Framework for Digitalization

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DISCOVER YOUR WORLD

Background of the study

- Digitalisation as a mechanism for
 - efficiency (Björkdahl, 2020)
 - improved quality (Carvalho *et al.*, 2021)
 - organizational agility (Ghasemaghahi *et al.*, 2018)
 - firm performance (Popovič *et al.*, 2018)
 - competitive advantage (Hess *et al.*, 2016)
 -
- → “us too” but “how?”



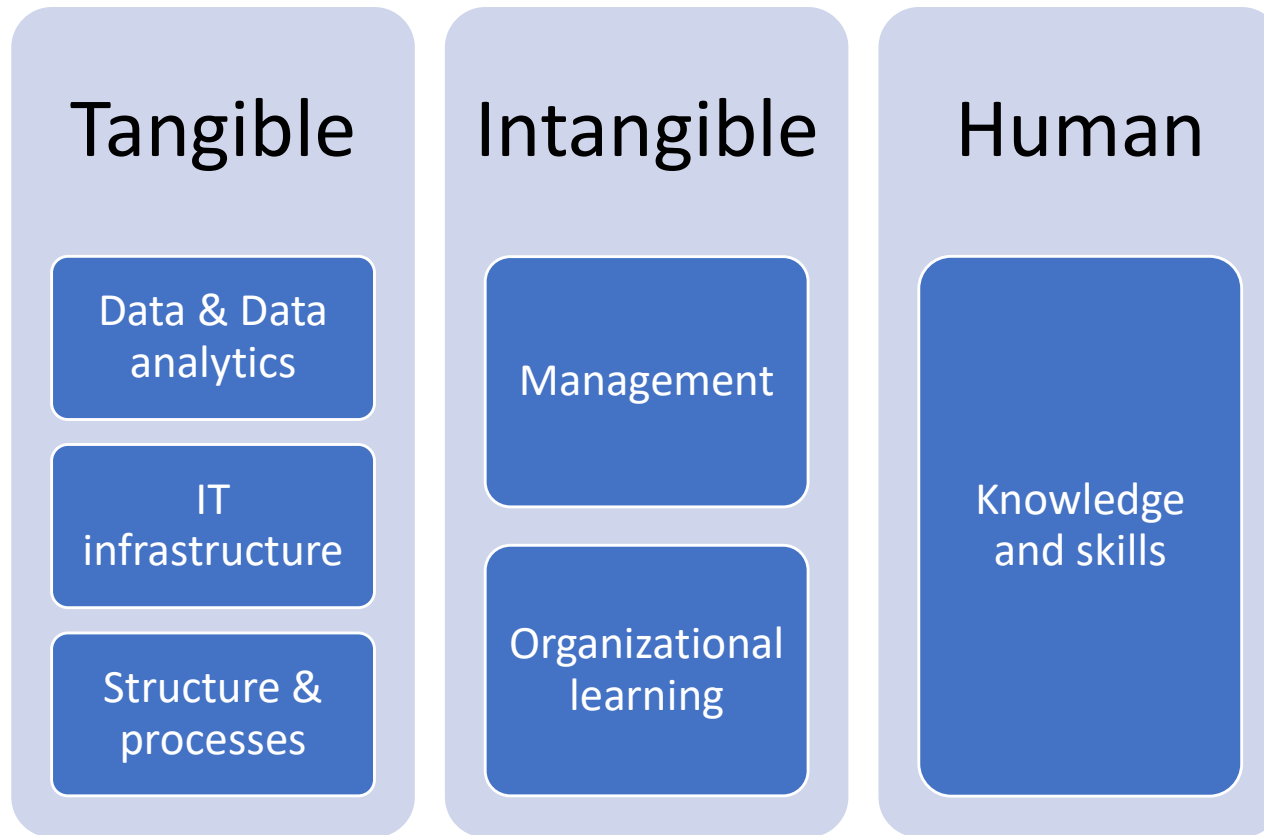
Objective

- to formulate a practical framework for the implementation of digitalization, taking a multi-disciplinary approach and focusing on how organizations can *“configure, orchestrate and exploit competencies, assets, and data generated from digital technologies”* (Björkdahl, 2020).

Methodology

- Multi-disciplinary review of the literature
- Semi-Structured Interviews and company document review
- 4 Organizations
 - Production company
 - Retail
 - High tech production / SME
 - High tech production
- Thematic Analysis

Literature Review



(Gupta & George, 2016; Mikalef et al., 2017; 2018)

Results of Thematic Analysis

Knowledge and skills within the organization as a pre-requisite

Role of management to provide leadership, support and resources

Evolution of structure and processes

Missing link to strategy

THE DATA ANALYTIC CAPABILITY WHEEL



Data: Organizations need to be able to identify, access, and/or acquire data that is complete, accurate, timely, reliable and of value. This requires data governance to be put in place.

Data Analytics: Organizations need the tools to analyze the data and turn it into actionable insights. These can be classified into descriptive, predictive or prescriptive.

Knowledge and Skills: Both domain knowledge and technical knowledge are needed for employees to be able to translate business needs to analytic needs and to conversely generate business insights from the use of data analytics.

IT Infrastructure: An infrastructure to collect, analyze, and store data is needed. Technology providers are an important resource to provide support.

Processes & Structure: Processes need to be in place in the organization to ensure that insights generate also result in improved decision-making. A central department can facilitate the development of data analytic capability.

Management: Management formulates and communicates a vision for data analytics, invests in employees and resources, and models data driven decision-making

Strategy: the development of Data Analytic Capability needs to be linked to strategic goals.

Organizational Agility: Data Analytic Capability enables the organization to quickly respond to unanticipated changes in its environments through better decision-making and resource allocation.

Data & IT Infrastructure
The IT infrastructure needs to generate relevant and quality data, in a timely manner and make it accessible to users across the organization.

IT Infrastructure and Processes
Alignment is needed to ensure that IT infrastructure supports processes (e.g. automation) and captures data from processes (e.g. digitization).

Data & Data Analytics
The right data is needed for data analytics to support decision-making by providing insights in line with strategic decision-making.

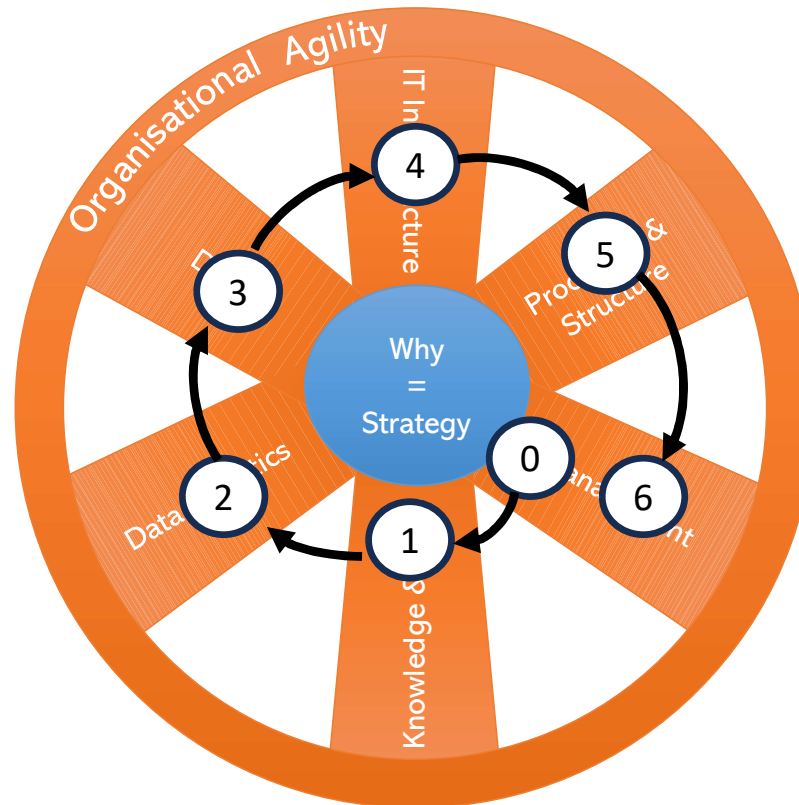
Management & Processes and Structure
New specialist departments need to be developed. Decision-making processes need to be amended to incorporate data insights.

Knowledge and Skills about Data Analytics
Employees need sufficient knowledge to translate needs for business insights to data analytics and vice versa.

Knowledge and Skills of Management
Management needs sufficient knowledge to be able to link DAC to strategic goals, and select the right resources and projects to invest in.



A ROADMAP TO IMPLEMENTATION: A FIRST SPIN



Step 0:

Formulating digitalization objectives in line with organizational strategy.

Step 1:

Inventorizing the knowledge and skills already in the organization. Introducing expertise if necessary.

Step 2:

Translating strategy and digitalization goals to what insights are needed.

Step 3:

Ensuring that the right data is available in a timely manner etc.

Step 4:

Checking that the IT applications can support the data and communication needs.

Step 5:

Putting systems and structures in place to support the digitalization strategy (e.g. expert teams)

Step 6:

Checking progress towards the digitalization objectives, amending or expanding as necessary.

Discussion and conclusion

- Complex socio-technical processes, requiring a multi-disciplinary perspective (Legner et al., 2017; Mikalef & Krogstie, 2020).
- Six aspects that are interlinked
- Introduction of knowledge to the organization
 - Training
 - Hiring
 - Contracting
 - → Organizational learning

Future research

- Confirm relevant aspects with broader sample of organizations in broader set of contexts.
- Implement the DAC Wheel in cooperation with organizations.



? Questions ?