Digital Maturity and SMEs: evaluating the application of a digital maturity assessment tool

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Abstract

The challenges of undertaking digital transformation within Small and Medium Enterprises (SMEs) are multiple. The constraints of limited resources and a lack of clear strategic purpose for the transformation are readily evident across many existing case studies. Underlying these evidenced challenges is the persistent issue of the digital maturity of an overall organisation and its people individually as key factors in the success or failure of these change projects. We examine the use of a digital maturity assessment tool within an established membership-based SME to understand these many challenges and the way they are revealed through tools of this kind. We utilise a reflective approach based on direct organisational observations to consider the veracity and value of these assessment tools in supporting the drive for positive organisational change. Our conclusions are loosely critical of the generalised nature of these tools but support their intended purpose through the benefits that they generate through a Hawthorne Effect.

Keywords: digital maturity, digital transformation, strategic change, membership organisations, digital maturity tools, SMEs

1.0   Introduction

Technologies have been driving change in organisations for decades. Ives, Hamilton and Davies (1980) wrote about the introduction of computer-based Management Information Systems in the 1980s. Rockart (1982, 19) conducted research on digital leadership but using the term, "Information Systems Executive", spoke of the need for "technically literate people to help line managers understand their own needs and build their own systems". Forty years later, the potential of technology is still the driving impetus for organisational change. The major difference that can be made to this observation over this history is an ever-increasing pace of change. Initially regarded as being a mirror to Moore's Law, where technological improvement is

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regarded as a continuously exponential scaling of hardware capacity, the persistent acceleration of organisational change has prompted observations that the pace of change has long been left behind this constraint. A conscious and continuous state of change brought about by the processes of digital transformation is now the status quo for many organisations irrespective of their size.

Further emphasising the rapid acceleration of these change processes, digital transformation entered even wider common awareness during the initial periods of COVID-19 lockdown. Digital transformation has now become a coverall term for the holistic digitalisation of all of an organisation's operations, processes and communications. Through this definition the holistic perspective is pivotal to ensure strategic and sustainable processes of change. The additional implication is that these changes are only possible with parallel supportive changes being encouraged and occurring among an organisation's people - leading to the state that Li et al (2021) describe as the 'organisational mindfulness' that can support digital transformation. Within small and medium enterprises (SMEs) this need to develop people can be a significant challenge that is too readily overlooked amongst the apparent ease of use and intuitiveness of existing consumer technologies that dominate discourse. The generally erroneous and unspoken assumption is that the need and scope for organisational change through digital transformation is obvious because other forms of readily available consumer technology are already in common usage. The further extension to this assumption is that individuals within organisations will similarly see the self-evident need and also have the pre-existing personal capability and willingness to support this change through the development of their own learning and knowledge. The implication is that people with a digitally transforming organisation should be open to change in their role, processes and mechanisms for communicating internally and externally rather than an imperative to become "coders".

These observations are reinforced whenever an individual SME is encountered and their internal workings are observed. This short paper responds directly to the experience of interacting with a membership SME that has collectively acknowledged the absolute need to digitally transform from an organisational point of view while underestimating the importance of individual personal development to support the very same change.

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2.0 SMEs and (the difficulty of) Digital Transformation

SMEs are operating in a context that requires them to balance a number of sometimes conflicting challenges. By their nature they have limited resources, and often have specialised capabilities but without the broader established environment of larger organisations, meaning that developing digital capabilities is challenging (North & Varvakis, 2016). In order to remain competitive an SME must be proactive in recognising the customer expectations for their goods or services within their defined markets, act as a self-aware change agent capable of identifying new opportunities and agile enough to refine and reframe their own business models when required. This requires an SME to first identify the opportunities afforded by the ever-changing technological environment, seeing the possibilities through insights gleaned from competitors and other sectors and internalising these stimuli to drive strategic digital transformation that enables them to remain competitive. Digital transformation is characterised as an activity that organisations undergo "in response to changes in digital technologies, increasing digital competition and resulting digital customer behavior" (Verhoef et al 2021).

Within the SME, there is a need for vision. Realising this vision will generally hinge upon digital transformation as an explicit aspect of the change. Change of this type is challenging when digital understanding and technical competence 'often do not exist' in SMEs (Williams 2019). Alongside this strategising, organisations must manage the operational barriers to digital transformation; people, processes, communications and technologies. Immature processes can act as a brake to enthusiastic adopters and reduce the ability to push change among laggards. Absent processes are an effective barrier to holistic digitalisation and the introduction of new digital tools across an organisation. Inconsistent procurement processes for new technology can lead to the ad hoc adoption of "free" and "trial" ware, and leave organisations vulnerable to high pressure sales tactics resulting in the adoption of tools that do not meet business needs in an integrated manner (or, sometimes, at all). These organisational challenges result in change for change's sake that lacks strategic focus and results in a lack of alignment between the introduction of digital tools and the overall vision for the SME. Responding to perceived external pressures - the desire to avoid being left behind or

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overtaken by competitors - without clear alignment to an SME's own internal vision will generally not yield the anticipated benefits.

People are an essential element in successful digital transformation (Fenton et al 2019). In SMEs there is often not the space for the staff development around the skills that would support transformation. The impact of this lack goes beyond general competence with the tools needed to carry out day-to-day activities. Where there is no common organisational language for the desired change, it is more difficult to transform and deliver the vision.

From a technical viewpoint, the key challenge is a lack of integration of digital technologies that can support transformation. A patchwork of systems introduced over time leads to siloing, hallmarked by inefficient workarounds such as manual data entry and awkward combinations of online and offline processes. An increasing gulf between the domestic experience of easy-to-use consumer technologies and organisational tools that don't align closely to processes further creates frustrations and unintended resistance to change.

A strategic digital transformation approach can support SMEs to implement a programme of change, and navigate these common organisational, people and technical pitfalls (Fenton et al 2019). An initial step to undertake successful transformation is to conduct analysis of the current level of digital maturity among colleagues, to support the incremental development of goals that align with the organisation's vision and to inform an approach to transformation that is sensitive to the organisation's specific current context. Thus, understanding the efficacy of tools for assessing digital maturity is an important enabler for digital transformation in SMEs. In the following sections we examine the concept of digital maturity and the ways to assess this in a systematic manner. This is followed by introducing the research domain for this work; Business Membership Organisations that by their nature are usually SMEs.

2.1 What is digital maturity, and tools for assessing the phenomena

Pial (2021:3) asks the question "what do we know about digital transformation?" and through a review of 282 works, their study concluded that digital transformation is "a process wherein organisations respond to changes taking place in their environment

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by using digital technologies to alter their value creation processes". While the importance of the process of digital transformation has coalesced during the COVID pandemic (Barrutia and Echebarria 2021), the meaning associated with the concept of digital maturity has not become similarly consistent. However, adding the prefix of 'digital' to maturity does provide some form of focusing lens for strategic planning for digital transformation (Williams et al 2019). The organisational need for perspective upon digital maturity has resulted in the development of a variety of models from academics and consultancy firms, that focus on gauging the overall rate of progress for an organisation against stated benchmarks. Williams et al (2019:3) argue that maturity models in general, "offer a set of overlapping investigations into the gap between the company's current and future capabilities", with one of the most cited examples being the 1986 Capability Maturity Model (CMM). More recently, mature (and larger) organisations may themselves employ methods such as Technology Readiness Levels (TRLs) or industry readiness models to gauge the maturity of technologies being introduced into an organisation from the most conceptual through to the full-scale integration and deployment (Nebati et al 2022). However, whilst methods such as TRLs are employed by organisations such as NASA and EU Frameworks, it is clear that even simple awareness of these approaches within an SME would be a key indicator for stronger strategic (as well as digital) maturity. Within the context of SMEs where resources are scarce and the small number of individuals are each an important and contributory factor to the overall progress of an organisation, the measurement and encouragement of personal understanding and skills associated with being digitally mature becomes paramount. In this sense, tools that survey this understanding can be seen as important models for taking a temperature check for the likely success of programmes of digitally-oriented strategic change. Additionally, SMEs prefer more practical tools that are easy to deploy and have pragmatic solutions, so tend to steer away from the more theoretical, conceptual models (Schallmo et al 2020). An example of these solutions that meets pragmatic SMEs requirements is Forester's Digital Maturity Model (DMM) 4.0 that uses a personal opinion poll based on the 0-4 scoring of responses to seven questions within four different dimensions relating to the organisation. Other academics and consultancies offer alternative views on the same challenge, through, for example,

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Deloitte's Digital Maturity Model (DDMM). The focus shifts from model to model, ranging from the personal to pan-organisational. As the worldview of these models moves towards the expansive, their value and the conclusions that they can reveal for an organisation will vary in their utility for an SME. To make this plethora of tool choices even more problematic, Schallmo et al's (2020) recent study of digital maturity models for SMEs, found there is no consensus regarding which dimensions are required to be examined when deploying such tools.

Despite these uncertainties, SMEs need practical tools to compare their situations and to assess the scale and scope of the digital transformation journey. While some sectors, such as retail, have a sufficiently rich evidence base to compare "like-minded" digital transformations other sectors remain relatively unexplored by either the academic or consulting spheres of practice. This pushes individual SMEs in these sectors to more generalised tools. The case study explored here exists in one of these under-represented sectors.

2.2 The Research Domain: Business Membership Organisations

Business membership organisations play a crucial role in the connections and collaborations they can enable between entrepreneurs, government, service providers and other key stakeholders. Business membership organisations or B2B membership organisations are under-represented in SME literature and arguably suffer from being represented by their relationship to different stakeholders, with incorrect assumptions being made that they are government QUANGOs, connected to local government or with similar resources as their highest profile and largest members. These are the assumptions made when organisations are given any consideration. However, generally membership organisations are simply seen as the glue for making B2B connections rather than being SMEs in their own right.

The role that B2B membership organisations play within the local business ecosystem came under critical scrutiny during the COVID pandemic as member businesses reflected on the benefits and value being delivered. The role of technology was a pivotal consideration in this scrutiny as many of the offerings of traditional business membership organisations, such as networking events, were suspended or hampered in this period. At the same time, member organisations were trying to rein in "non-essential" spending. Business membership organisations were simply unprepared for

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the threat that the pandemic presented to core activities (Glenister and Pelican Communications and Synergy, 2021). This unpreparedness was multidimensional in nature, ranging from the rigidity of organisational structure, the heavy reliance on physical events, the format of member-to-member networking opportunities and the persistence of the founding mindset of the organisations (sometimes from the early 20th or 19th centuries). Members weighed the option of directly saving money by withdrawing their membership against the potential value given the circumstances that could be extracted from continuing their membership.

Irrespective of the many negative impacts of the pandemic for businesses (including B2B membership organisations) and individuals, it has also been the trigger for digital transformation among many organisations. In the context of membership organisations, this has presented the opportunity to become more resilient and to harness a renewed sense of purpose that in some cases have been ground-breaking. For example the Institution of Structural Engineers (the world's largest certified membership organisation) moving to on-line examinations had a cost saving of £40K in shipping costs alone. Clearly, the most certain and significant way to retain members in the face of the external VUCA (Volatility, Uncertainty, Complexity and Ambiguity) environment, is for membership organisations to improve their value proposition and to become robust enough to withstand future shocks through digital transformation that harnesses commercialised technologies such as big data and AI (CIDP, 2021).

3.0 Method

The primary insights for this paper were developed through a two-stage approach. Firstly, a survey was distributed among the staff of a B2B membership organisation and the responses were collected. This was then followed by a period of further engagement coupled with observation and reflection - in effect, a sense check of the results was possible because of the largely unrestricted access to the organisation that had been provided. The DMM 4.0 Evaluation Tool (Gill and VonBoskirk 2016) was used amongst the staff of the organisation to capture its current situation. The Digital Maturity Evaluation Tool 4.0 was developed for Forrester to assess the digital readiness of organisation across four main dimensions: culture, organisation,

technology and insights. The multi-dimensional approach is evident in other similar tools but the Forrester tool was selected for its practical origins within business consulting and its previous use across all types of organisations, rather than it being solely an academic artefact. The tool's questions were also appealing for their neutrality and disconnection from any specific technological knowledge. The use of this tool was part of a larger transformation project that involves introducing significant organisational change that involves the implementation and use of digital tools. In order to assess the likelihood that these proposed changes had any chance of success, to identify challenges, and to understand staff readiness, the need for a pre-implementation evaluation was built into the wider project plan. The evaluation tool was administered to 34 employees in October 2022. Following this data collection, the responses were analysed according to the tool's pre-defined methodology to derive an overall average score of 48, placing the organisation at the high end of the "Adopters" category, a conclusion that is explored further in the Analysis section below.

Following the calculation of this result, the second stage incorporated additional activities and workshops with the same employees, including a series of digital mindset workshops with team managers. The mindset workshops are informed by the same four dimensions as the survey: culture, organisation, technology and insights. Following on from these activities, the project team then undertook a systematic reflective exercise based on their own observations of the organisation and its employees. Coupled with literature regarding changes that have occurred in other types of membership organisations in both the B2B and B2C sectors, a form of triangulation could be achieved against the initially reported results.

4.0 Analysis, Discussion and Reflection

4.1 Analysis

The four dimensions contained in the tool; culture, organisation, technology and insights are each reported based on the answers given to seven questions in each of these dimensions. Questions are scored between 0 ("Completely Disagree") and 3 ("Completely Agree"). This provides a range of scores from 0 to 21 for each dimension, and the potential for an overall score for individual responses from 0 to 84

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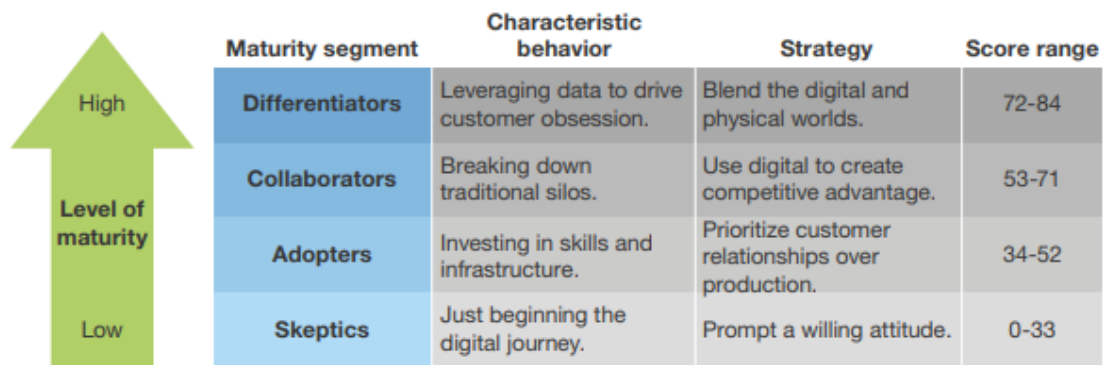
(Figure 1). In the organisation examined, the averaged scores for individual answers ranged from 1.3 ("We have clear and quantifiable goals for measuring the success of our digital strategy") to 2.0 ("Our board and our C-level executives back our digital strategy" and "We prioritise overall customer experience over the performance of any individual channel") placing the responses around and slightly above the midpoint of the range. Aggregating across each dimension produced a dampening effect with the culture dimension producing the highest average response (1.73 average response) and organisation producing the lowest (1.68 average response).

Dimension	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Total
Culture	64	70	56	44	45	64	70	413
Technology	50	57	59	59	62	53	59	399
Organisation	64	51	55	47	52	66	62	397
Insight	46	60	58	64	60	59	62	409
Overall Total								1618

Figure 1: Aggregated results from the Digital Maturity Evaluation Tool.

Using the DMM 4.0 benchmark adopted from Gill and VanBoskirk (2016), the cumulative digital maturity score divided by the number of respondents falls between 34 and 52. This membership organisation is classified as being 'Adopters' according to the embedded scoring system (Figure 2). This implies they are at a stage of digital maturity where investing in skills and infrastructure is the priority. At this stage organisations rank customer relationships over production. Customer exposure to web, apps, cloud storage and the use of internet-connected devices has transformed perspectives and expectations in professional as well as domestic interactions. Organisations at this stage of their digital transformation journey have a determined and purposely designed digital strategy but are still need to scale and automate their transformation initiative.

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	Maturity segment	Characteristic behavior	Strategy	Score range
High	Differentiators	Leveraging data to drive customer obsession.	Blend the digital and physical worlds.	72-84
	Collaborators	Breaking down traditional silos.	Use digital to create competitive advantage.	53-71
Level of maturity	Adopters	Investing in skills and infrastructure.	Prioritize customer relationships over production.	34-52
Low	Skeptics	Just beginning the digital journey.	Prompt a willing attitude.	0-33

Figure 2: Four Segments of Digital Maturity

The scored results presented a reasonable (and what might be regarded as a "sensible") outcome. However, observations of the organisation prompted reflection about this outcome and a need to sense check the results. Effectively there was a need to compare the declared reality of participants with the observed reality of the day-to-day organisation situation.

4.2 Discussion and Reflection

The results of the survey coupled with the subsequent discussions and workshops highlighted a situation that closely echoed the models associated with the diffusion of innovation theory (Rogers 1971) (Figure 3). While the impact of averaging used in the DMM4.0 tool tended to pull the results to the middle ground across a small organisation this arithmetic approach risks hiding the influence and impact of "innovators" and "laggards". Even when the sample represents the entire population (all the employees), extreme responses are dampened down. The effect is to distract attention away from the frustration of the innovators or the recalcitrance of the laggards.

Figure 3: Diffusion of innovation theory categories of innovativeness (after Rogers 1971)

Perhaps worse, the negating effect of pairs of low-scoring laggards and high-scoring innovators may hide a more gridlocked tension regarding digital maturity than the overall outcome suggests. This could be argued to be a worse-case scenario in terms of planning and developing a people-based strategy. An organisation with a set of laggards coupled with largely early majority would provide a more useful and workable result on which to base further actions towards digital transformation.

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As an anonymised survey the status and role of laggards and innovators are also effaced. Presenting the organisation as entirely non-hierarchical may be a commendable sentiment, however, it is an approach that removes further nuance and context. Within a smaller organisation while there may be almost familial solidarity there is, nonetheless, a hierarchy in which some opinions will "count" more than others.

There is some debate regarding the readiness of organisations to make their digital maturity evaluation public. Though the benefits for benchmarking within a sector is obvious. But, for some, exposure of their digital 'dirty washing' may be interpreted as a shortcoming or lack of capability (Schallmo et al 2020). The lack of sector based comparisons or benchmarks for the DMM4.0 tool brings an additional source of frustration as the workshops revealed a variety of opinions about the digital maturity of competitors that itself shapes behaviours and perspectives around the urgency or even need for strategic digital transformation. For those who individually believe they are in an organisation ahead of competitors there is an almost carefree attitude. But the contraposition was also evident in the same organisation. Even further competitor analysis revealed that assumed competitors were often operating with different priorities, emphasis and business models. This more detailed analysis has the potential to render the value of one-to-one comparison somewhat meaningless and the value of a sector benchmark useful only when it consolidated the outcomes of a significant sample of similar organisations. A seemingly impossible task. This critique then returns to a fundamental questioning of the value for all digital maturity assessment tools.

5.0 Conclusions

Despite many of the concerns our observations raised about the veracity of digital maturity assessment tools, a clear and positive counter-argument also manifested itself during subsequent workshops and interactions. While the tool intentionally lacks organisational context and the arithmetic approach tends to dampen down extreme position it did have significant value in raising awareness across the organisation in a consistent way and offered a way of engendering a shared and paced sense of urgency regarding the change. The dampening effect of the averaging in the calculator of a

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final score sent a subtle but clear message to both laggards ("catch up") and innovators ("you need to bring others along"). Through observation it became clear through statements and interactions from individual staff that they were loosely measuring and comparing themselves against the reported outputs.

Interactions, comments and engagement in subsequent workshops indicated that we were witnessing a form of Hawthorne effect. The administration of the survey had alerted staff across the organisation of the types of personal and collective attributes associated with positive and successful digital transformation. The consistency of the tool made it clear that high scores to any given question is regarded as a positive behaviour or action to be emulated. There were indications that the survey had even provided staff with a common vocabulary with terms including "digital strategy", "customer insight", "architecture" and "channels" being heard more regularly in comments and discussions over the subsequent months of interactions.

The insights in this paper are derived from a single case study in the B2B Membership sector. Whilst this limits the generalisability of the findings, they are nevertheless of relevance to SMEs grappling with the external pressures driving digital transformation. The adoption of a digital maturity assessment tool appears to have value in supporting the digital transformation journey. Further research would be of benefit, both to examine the longitudinal benefits of use of the tool, and to understand the impact on a wider range of organisations.

The value of a digital maturity assessment tool clearly rests in its regular use to help drive the people dimension of strategic change. Regular administration of the tool will help to reinforce the common language and pace of change. While comparisons with other organisations or the sector may not yet be possible, there is a need for caution with internal comparisons over time. Despite the attempted neutrality of the questions we expect to witness a brief dip in the cumulative score over time - a knowledge-based uncanny valley - as collective awareness of the organisational challenges and the tasks still to be completed become fully evident to all members of staff. The lowest point in this dawning collective awareness of the scope of the project will be the point at which the overall digital transformation project is most at risk.

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