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RESEARCH PAPER

Software Obsolescence and Its Implications for Enterprise Transformation Roadmaps

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Abstract

The obsolescence of business capacity and its effects on corporate business transformation roadmaps are examined in this article. Operational and strategic weaknesses are revealed by the study's empirical research of obsolescence risks found in vital business services, which are shown by risk heatmaps from case studies like UK police forces. Applications were mapped to business services using an algorithmic technique, end-of-support risks were assessed, and visual heatmaps that effectively conveyed obsolescence driven hazards to stakeholders were produced. With the use of a competence progression model that progresses from digital literacy to adaptive leadership, these discoveries inspired the creation of a systematic four-phase transformation roadmap that includes Strategic Foundation, Transformation Architecture, Sustainable Evolution, & Value Delivery. The study offers practical advice for companies looking to modernise their business capabilities in a sustainable manner and match them with changing digital needs by fusing obsolescence risk assessment with capacity transformation frameworks. By providing a useful paradigm that illustrates how obsolescence not only poses problems but also calls for organised change to guarantee resilience, competitiveness, and long-term adaptation, this study bridges the gap between diagnostic analysis and prescriptive strategy.

Keywords: Software Obsolescence, Business Transformation, Digital Literacy, Business Capability, Roadmaps

Introduction

Software obsolescence is defined differently for commercial off the shelf (COTS) goods, according to Sandborn. This is because there is often a long period between when a product is sold and when support for it ends. [1] Nevertheless, the decision to remove support may not result in instant loss or deterioration. Instead, it prompts the organisation to take the required steps to maintain the technology's capabilities, depending on how vital it is. In this context, we shall use the term "obsolescence" to refer to a technological system's diminished usefulness as a result of its de- or near-term support status. While it's easy to pinpoint when production will cease and support will end, it's trickier to predict how a technology will fare with diminished or non-existent support; this depends on the organization's resources and capabilities in addition to the technology in question. [2]

A lot of companies are still using technology that is really old. Issues with cost and risk are brought forth by this. One clear illustration of the need for further development and (a) specific maintenance procedures is the continuous usage of Internet Explorer 6 and Windows 2000 in the UK public sector. Such programs are designed to handle outdated technology. Also, it's hard and costly to get support for technologies that are really outdated, whether it's hardware or software.

The standard root cause analysis query "why" may be helpful in recursively identifying the reasons of an IT estate's high cost of ownership, which can be caused by many different things. [3] The high expenses of application development and maintenance in data centres, for instance, may be explained by the fact that these locations incur their own unique set of expenses in terms of cooling, electricity, rent, and the physical equipment (servers, switches, etc.). When it comes to servers, there are software and hardware expenses to consider. As the goods they are built on grow outdated and need specific care, these prices are expected to rise. An expensive problem becomes an operational risk when the associated goods become unsupportable after a while. Figure 1 shows the customer the results of a graphical root cause analysis, which clarified the situation.

There is a larger operational risk of service failure owing to increased expenditures and a lack of knowledge, which is especially troublesome in situations when the core service delivery capabilities of the company are dependent on technology that is no longer in use. When information systems and information technology fail to fulfil expectations, it may have a negative impact on the performance of business services, which presents a danger to the company's reputation if it is not addressed. Because it limits the enterprise's ability to process and share data and information that is of high quality (that is, accurate, complete, and timely), inaction presents a danger to the capacity of the organisation to provide services. Nevertheless, it is not sufficient to simply determine which aspects of technology are likely to evolve into outdated. In addition

to this, it is of the utmost importance that we have a comprehensive understanding of the ways in which the technology makes the operations of the firm easier, especially the services and processes that it provides. If we are interested in determining the impact that obsolescence will have on objects, we must first determine the significance of the relationship. As shown by the four-step chain depicted in Figure 2, the degree of risk and consequence that accompany the imminent obsolescence of an information system component is dependent on a cascade of factors.

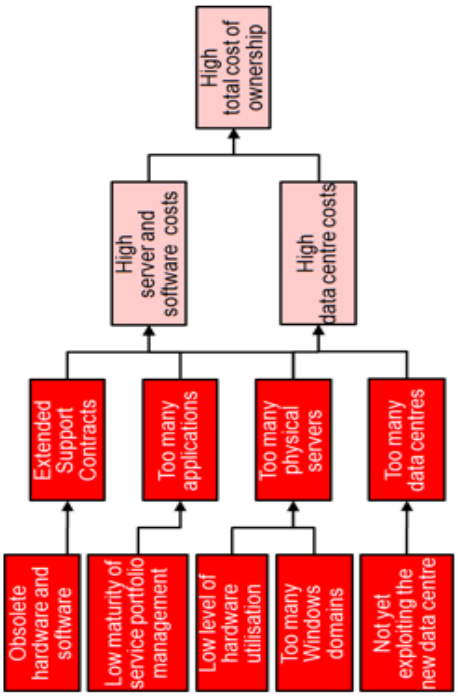

Figure 1. *Analysis of the Causes at TCO*

Taking into account how quickly the technology component will become outdated is the first thing to think about. The level of support and maintenance provided by the vendor is directly proportional to the product's capacity to continue working after it has reached its end of life. The criticality of obsolescence is the second factor to take into account. Even with post-obsolescence support, the service quality of the obsolete technology may decline because it is unable to match the performance of the information system service provided by more modern or competitive technologies.

There is also the possibility of pursuing an upgrade path, which has the ability to reduce the degradation. The last thing to take into account is how the information system component influences the service that the organisation offers. Does the performance and capacity of the information system component have a substantial influence on the business service, or does it mostly have no impact at all? In conclusion, the

fourth factor to take into account is the significance of the company's service in terms of the value that is delivered to the consumer. In theory, a failure mode and effect analysis ought to take into consideration all of these components, [3] but in practice, doing so can result in an increase in both complexity and price.

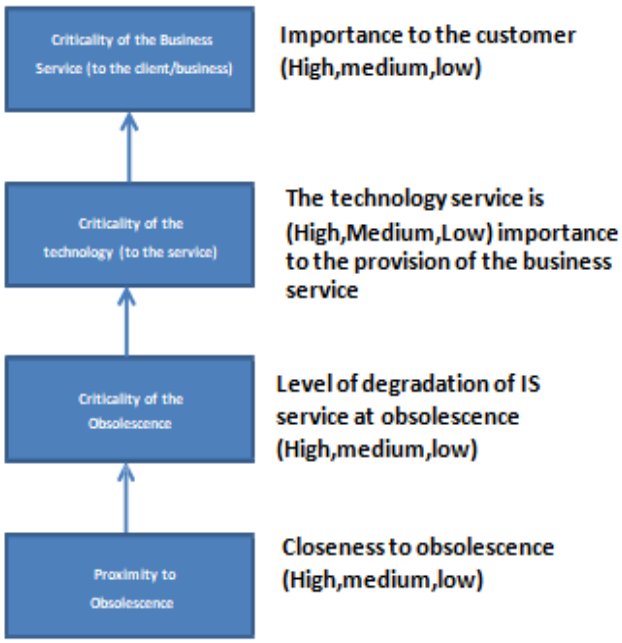

Figure 2. *Lifecycle of Product Depreciation*

Although there are analytical frameworks that provide useful metrics for determining the criticality of the links between business and information systems services, it is more appropriate to conduct an in-depth architecture analysis using these frameworks. [4] A risk framework that is less complicated is provided by us. This framework is constructed on a more straightforward metamodel, which will be detailed in the next sections.

The obsolescence of business capability has become a critical challenge for modern enterprises seeking to sustain competitive advantage in a rapidly evolving digital landscape. Business capability serve as the foundational blueprint for understanding an organization’s core competencies, processes, and resources, providing a structured framework to align strategic objectives with operational execution. However, as technologies, market conditions, and customer expectations evolve, these models can quickly become outdated, leading to misaligned initiatives, inefficient resource allocation, and delayed decision-making. [5] The obsolescence of a business capability not only affects the organization’s ability to innovate but also disrupts the enterprise transformation roadmap, increasing the risk of failed initiatives and undermining long-term value creation. [6] Understanding the causes and impacts of capability obsolescence is therefore

essential for designing adaptive, resilient transformation strategies that ensure alignment between evolving business goals, technological advancements, and organizational processes. [7]

Materials and Methods

This study uses a mixed-method approach that combines the creation of a qualitative roadmap with quantitative risk assessment. Using end-of-support dates and criticality evaluations to create risk heatmaps, applications and infrastructure were first mapped to business services inside UK public sector organisations in order to quantify obsolescence risks. Areas where business skills were compromised or at danger were identified by this quantitative data.

A four-phase transformation plan was then developed using expert interviews, organisational competency frameworks, and theme analysis of successful digital transformations. The main methodological contribution is the direct integration of prioritised transformation roadmap stages with mapped obsolescence threats, which connects empirical results to useful strategic business modernisation activities.

Results

Identifying Business Risk

A comprehensive explanation of the methodology that may be used to ascertain the total risk that information technology presents to an organisation. Because of the potential impact they might have on the business and the chance that they will occur, the "avoid/prevent risks" are regarded as the most important in the four-quadrant model for risk classification that is provided in this study. As a consequence of technology obsolescence, the primary focus of this piece is on the impending threat that this quadrant offers to the organisation. To put it another way, if the individuals operating inside the organisation were aware of these risks, it is very probable that they would take measures to reduce them to a level that is acceptable.

Utilising "heatmaps" to highlight business risk is permissible provided that they are backed up by appropriate information. A colour-coded depiction of the strength of a solution is called a heat map, and it is a visual aid that may be used to better understand multi-objective optimisation techniques. Problem-solving and consulting are two areas that have made substantial use of it as a means of highlighting important information about obsolescence in a manner that is simply understood.

Our decisions are solely based on the criticality of the service and whether or not the client considers the technology to be obsolete. This is because the Obsolescence Impact Factor Chain can be a complicated and

expensive method to use in order to address all of the relevant factors, as was mentioned in the risk section. As a result, we have chosen to take a more straightforward process.

By transferring the methodology from the field of information technology, we are able to investigate all of the applications that form the basis of a certain business service on each of their Early Out of Service dates. Both the infrastructure and the commodities are the source of these applications. This is the question that we are posing to you: "After the EOES date has passed, are there any applications that this service requires?" It is quite evident that the maintenance of that corporate service is associated with a certain degree of danger when this is the situation that occurs. By analysing the organisational structure, we were able to map applications to business services in the second study that we conducted with the two police departments. A direct association between applications and business services was discovered by us in the first research, as will be shown in the following paragraphs. Examining the programs that are used by each organisational unit as well as the operational services that they provide is yet another approach to accomplishing this goal.

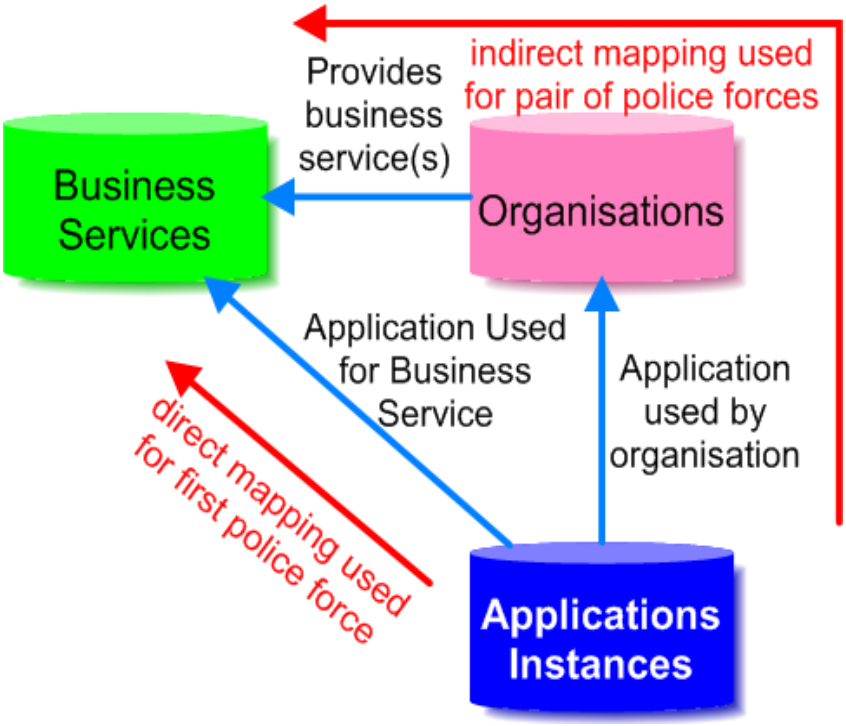

Figure 3. *In the transition from applications to business services, obsolescence*

Although a different mapping approach was utilised, the following procedure was nonetheless used. Another consideration is the business criticality level of each support application, where 1 is the most critical. It depends on knowing when each support application's EOES has to be submitted. (Figure.4)

```
FOR each business service
IF ∃ supporting applications of criticality 1 and EOES date in the past
THEN
      SET risk to MAJOR RISK
ELSE
    IF ∃ supporting applications of criticality > 1 and EOES date in the past
    THEN
        SET risk to SOME RISK
    ELSE
        IF we cannot associate any infrastructure with this service
               THEN
                 SET risk to UNKNOWN RISK
               ELSE
             SET risk to NOT AT RISK
        ENDIF
    ENDIF
ENDIF
```

Figure 4. *Application of an Algorithm to the Calculation of Business Risk in a Heatmap*

In the same way that the rest of the model's algorithms were automated, this calculation was also automated for all of the business services. This was accomplished by using the capabilities of the tool to calculate and store intermediate results, as well as the ability to "call out" to Excel whenever it was required. The outcome of the technique described above is seen in Figure 5, which serves as an example.

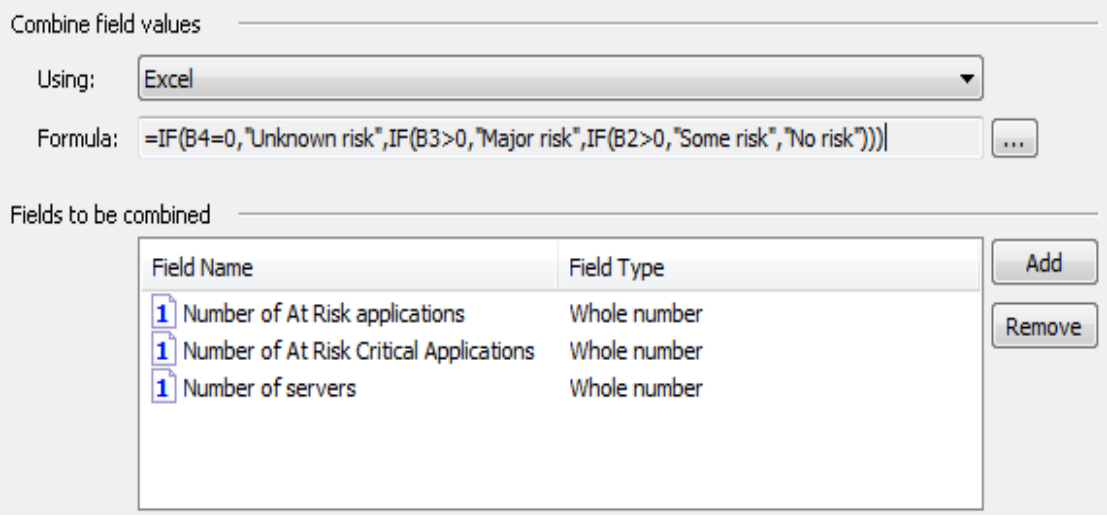

Figure 5. *Automated MooD® based risk assessment for enterprises.*

Use of the aforementioned techniques in an iterative fashion may allow for the evaluation of the risk connected with each PAG business service. The modeller was able to colour-code the company services based on the risk value, therefore the resulting heatmap looked like figure 6.

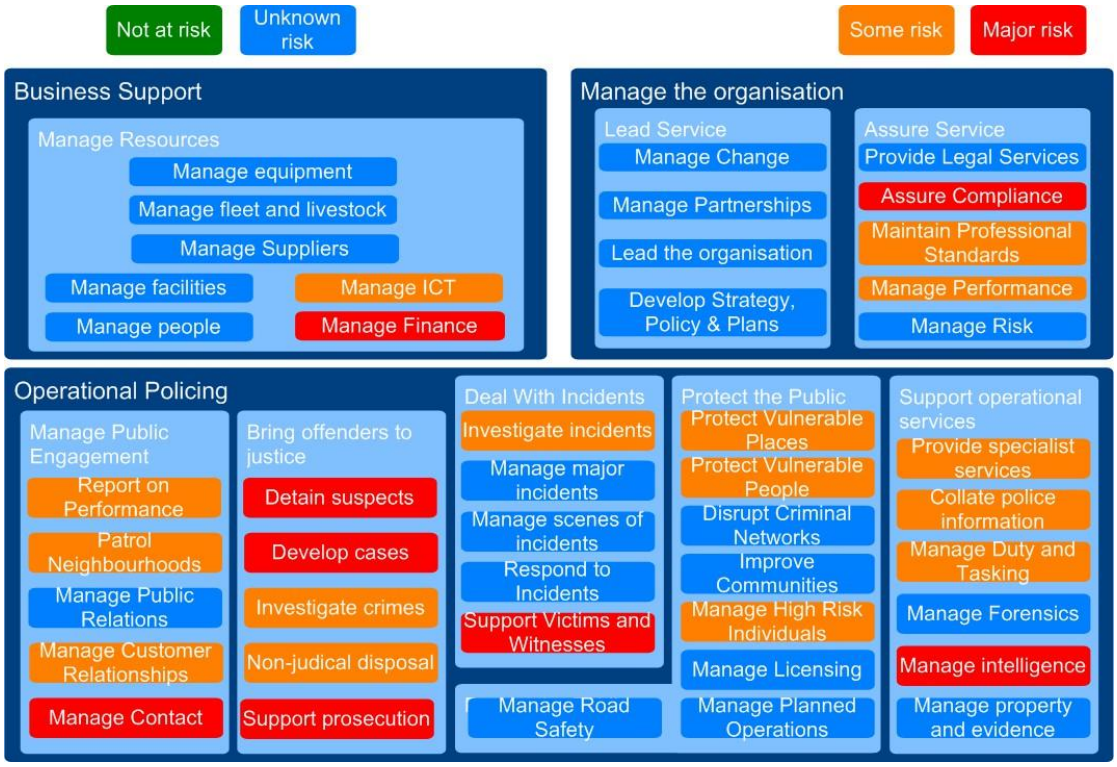

Figure 6. *Risk Map for Police Department Services*

This model's strength is in the fact that it explains a technical idea outdated products and its connection to the Enterprise Architecture model in language that business stakeholders can comprehend, without requiring any technical background. This is a great resource for proving the business case for removing this risk from the IT portfolio via the implementation of required modifications.

Not only do these heatmaps show the dangers of technology, but they also show how important company skills are becoming outdated. As an example, the 'all-red' heatmap in the police merger case revealed that law enforcement information systems relied on Oracle 8, a technology that is now considered outmoded. The results show that as capabilities become outdated, service resilience decreases, reputation is at stake, and operational risk rises. Accordingly, these dangers provide the basis for organised change, which is where the Business Transformation Roadmap begins.

Lessons Learnt

Two prerequisites must be met in order to do this kind of analysis. The first is a trustworthy dataset that uses consistent nomenclature and has the required connections between various information types. A proper toolset that can import, analyse, and report on the data is the second. In fact, it is sometimes challenging to convince stakeholders to submit even a single, authoritative list of apps, although gathering such

information may not be a significant barrier for organisations with an established enterprise architecture (EA) function. Without the assistance of a systematic requirements capture and modelling technology, this cannot be accomplished efficiently. Making an ontology chart using organisational semiotics concepts is one approach being considered. The MEASUR model has been effectively used in earlier research as a methodical way to interview and model organisational ontologies in business design and consulting frameworks. A stronger technical foundation ideally backed by a relational database is required to preserve data integrity. There are several possible tools that satisfy these criteria.

The Benefits We Reaped

In order to address the clearly highlighted cost and risk problems, the project team concluded that enough data had been acquired to provide a strong business case for further involvement with the client. The technique created in the original research proved highly reusable in the succeeding examination, which focused on the partial merger of two police forces in the United Kingdom. Despite having a very different underlying meta-model for the merger scenario, the heatmap technique provided a clear and efficient way to communicate risk. Due to a crucial business program that was still reliant on Oracle 8 and was used by both organisations, the combined forces' heatmap showed a "all-red" result. A powerful and well-received message about the need of action was conveyed to stakeholders by this visualisation. Lessons learnt from the first case study were used to simplify the model for the second one: applications were mapped directly to their underlying goods, and infrastructure and technology catalogues were removed. Furthermore, as opposed to the direct mapping employed in the first study, the organisational structure was utilised to establish the connection between applications and business services. The heatmap's computation remained reliable and efficient in illustrating obsolescence risk in spite of these structural variations.

Valuable Takeaways for the Customer

The key deliverable the client was hoping to get in regards to obsolescence was an analysis of the reasons for the shift. A clear and cost-effective business case was produced by combining the business heatmap with the TCO root cause analysis and additional financial data that is outside the scope of this paper. It is possible to extend the method and model to deal with more sophisticated threats and technology if that becomes required.

An obvious business case for change was created when capability threats were identified via obsolescence analysis. The data demonstrated the critical need to launch transformation programs immediately, in addition to naming costs and weaknesses. In particular, the heatmaps' identification of risks caused by obsolescence calls for a rapid emphasis on the transformation roadmap's Phase 2 (Transformation

Architecture) and Phase 1 (Strategic Foundation), with the goal of methodically replacing or reconfiguring outdated capabilities.

Business Model Transformation Roadmap

The following road map gives organisations a methodical way to react to the risks that were found, and it is based on the obsolescence study. The capacity of the UK police forces to provide secure, fast, and effective policing services was compromised by their dependence on antiquated information technologies, which also led to technological liabilities. In order to fix these weaknesses, the transformation roadmap follows a four-step process that starts with stabilisation and ends with sustainable development in the long run. (Fig. 7)

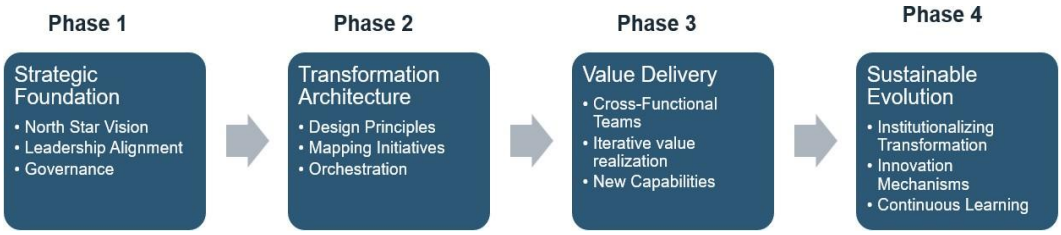

Figure 7. *Business Model Transformation Roadmap*

Strategic Foundation- Phase 1

The Strategic Foundation **phase** represents the initial and arguably most critical stage of the transformation journey, as it lays the groundwork upon which all subsequent initiatives are built. Its central objective is to articulate a compelling and forward-looking vision of the organization's digital future, while at the same time ensuring that leadership and stakeholders are united around this shared ambition. Establishing robust governance structures during this stage is equally essential, as these mechanisms provide the direction, accountability, and coordination required for transformation to progress effectively.

Key activities within this phase include several interrelated steps. First, the organization must articulate its "North Star Vision" a clear, ambitious statement of the desired end-state that communicates not only where the organization seeks to go but also why the transformation is necessary. For this vision to have internal and external resonance, it must be based on a thorough understanding of the changing digital world, new consumer expectations, industry trends, and the organization's distinctive value offer.

Second, there must be deliberate focus on **aligning leadership and stakeholders**. Digital transformation cannot succeed in silos; it requires the active engagement of senior executives, middle management, and key functional representatives across the enterprise. The process of alignment is about

cultivating a shared sense of urgency, creating a unified understanding of the transformation imperative, and mobilizing commitment in terms of resources, leadership attention, and organizational willpower. Without this broad-based alignment, even well-designed strategies risk faltering during execution.

Finally, the phase requires the establishment of effective governance structures to anchor the transformation effort. This involves defining clear roles and responsibilities, creating decision-making protocols, and ensuring transparent oversight of initiatives. Governance also extends to designing the mechanisms for accountability, including the identification of metrics and performance indicators that will be used to monitor progress and measure success. By embedding these controls early in the process, organizations can ensure that transformation efforts remain strategically aligned, operationally coordinated, and responsive to evolving challenges.

Transformation Architecture- Phase 2

The Transformation Architecture phase is a critical stage where the organization translates its high-level strategic vision into a detailed, actionable blueprint for its future operating model. Unlike strategic planning alone, this phase focuses on the practical design and orchestration of the transformation, ensuring that every initiative, process, and resource aligns seamlessly with the organization's long-term goals. The emphasis is on building a coherent architecture that not only supports the desired digital ambitions but also strengthens organizational agility, resilience, and competitiveness. Key activities in this phase include:

Defining Design Principles: At the heart of Transformation Architecture is the creation of clear, guiding design principles. These principles serve as the compass for all transformation-related decisions, ensuring that every initiative is aligned with the organization's strategic priorities and cultural aspirations. Design principles might emphasize customer-centricity, promoting a deep understanding of and responsiveness to customer needs; agility, enabling the organization to quickly adapt to changing market conditions; data-driven decision-making, ensuring that insights from data guide actions and investments; and ecosystem collaboration, fostering partnerships and integration across internal and external stakeholders. By establishing these principles early, organizations provide a consistent lens through which all future operating model choices are evaluated, reducing ambiguity and enhancing alignment across departments.

Mapping Transformation Initiatives: Once design principles are established, the next step is to identify and map the transformation initiatives that will operationalize these principles. This involves a comprehensive assessment of the organization's current capabilities, gaps, and opportunities across multiple dimensions, including technology, business processes, workforce capabilities, and culture. Initiatives are prioritized based on their strategic impact, feasibility, and interdependencies, and are

sequenced in a way that ensures smooth, incremental progress. The resulting transformation roadmap acts as both a planning and communication tool, illustrating how individual initiatives interconnect and collectively drive the organization toward its envisioned future state.

Orchestrating the Transformation Program: Successful transformation requires more than a roadmap it demands disciplined orchestration. This involves establishing robust program management structures, clearly defining roles and responsibilities, allocating resources effectively, and implementing governance mechanisms to monitor progress and address risks. Orchestration ensures that initiatives are not executed in isolation but rather in a coordinated manner, maximizing synergies, minimizing redundancies, and enabling timely course corrections. By maintaining tight alignment between strategy, design, and execution, the organization can confidently navigate the complexities of transformation while delivering measurable value at each stage.

In essence, the Transformation Architecture phase acts as the bridge between vision and execution, providing the organization with a structured, principle-driven framework that guides its evolution into a more agile, data-informed, and digitally empowered enterprise

Value Delivery- Phase 3

The Value Delivery phase is a critical stage in the transformation journey where strategic plans and architectural designs are translated into tangible outcomes. This phase emphasizes not just the execution of initiatives, but the creation of measurable, incremental value while fostering a culture of continuous learning and adaptability. Unlike traditional approaches that aim for a large-scale, one-time implementation, Value Delivery focuses on iterative progress, enabling organizations to respond dynamically to changing conditions and emerging insights.

Mobilizing Cross-Functional Teams: At the core of effective value delivery is the formation of cross-functional teams that integrate a diverse range of skills, expertise, and perspectives. These teams bring together stakeholders from different business units, technology domains, and operational functions to collaborate toward shared transformation objectives. Empowering these teams to make decisions independently encourages innovation, experimentation, and rapid iteration. By fostering an environment where feedback is actively incorporated and lessons are continuously applied, the organization not only accelerates the execution of initiatives but also builds organizational capability and resilience.

Iterative Value Realization: The Value Delivery phase prioritizes incremental value over a single, “big bang” implementation. Initiatives are designed to deliver tangible benefits in stages, providing early wins

that reinforce momentum and confidence. This iterative approach allows organizations to continuously assess the effectiveness of each initiative, incorporate stakeholder feedback, and refine processes or solutions as needed. By systematically learning from each iteration, organizations can reduce risks, optimize resource utilization, and ensure that transformation efforts are closely aligned with evolving strategic priorities.

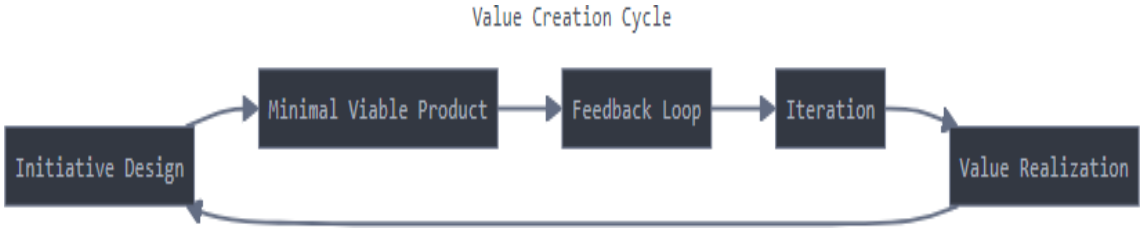

Figure 8. *Value creation cycle*

Embedding New Capabilities: The organisation should prioritise integrating new capabilities into its operations and culture as it implements transformation efforts. The creation of new abilities, habits, and methods of operation within the company is just as important as embracing new technology and procedures.

Sustainable Evolution- Phase 4

The Sustainable Evolution phase represents the final, yet ongoing, stage of the transformation journey, focusing on embedding change into the organization's DNA and establishing mechanisms for continuous adaptation and innovation. Unlike earlier phases, which emphasize planning, designing, and delivering transformation initiatives, this phase ensures that the benefits of transformation are sustained over the long term and that the organization remains agile, resilient, and forward-looking in a rapidly evolving digital environment.

Institutionalizing Transformation: As transformation initiatives begin to deliver measurable value and new capabilities are integrated, it is essential for the organization to institutionalize these changes into everyday operations and culture. This requires updating policies, standard operating procedures, and performance management systems to align with the newly established ways of working. Equally important is recognizing and celebrating the successes of individuals and teams who contributed to the transformation, thereby reinforcing the behaviors and practices that support the organization's long-term objectives. Institutionalization ensures that the transformation is not temporary or superficial, but becomes a permanent part of the organizational fabric.

Fostering an Innovation Culture: Sustaining transformation momentum requires more than operational changes; it demands the cultivation of a culture of innovation and experimentation. Organizations should establish dedicated innovation teams, internal venture funds, or partnerships with external ecosystems to explore new ideas, test novel approaches, and accelerate learning. By providing the structure and resources to experiment safely, organizations encourage creativity, empower employees to challenge the status quo, and maintain a competitive edge in an ever-changing market.

Building Organizational Resilience: The Sustainable Evolution phase also emphasizes the importance of nurturing resilience and continuous learning. Organizations achieve this by creating feedback loops, encouraging knowledge sharing, and promoting a growth mindset throughout all levels of the workforce. Such practices enable the organization to quickly adapt to new challenges, integrate lessons from past initiatives, and continuously refine its strategies and operations. A resilient, learning-oriented organization is better equipped to respond to emerging technologies, market disruptions, and evolving customer expectations, ensuring that transformation gains are preserved and amplified over time.

Enhancing Organisational Capabilities

Organisational competencies must be developed and refined at each stage of the transformation roadmap in order to successfully navigate it. We provide a model that draws on the capacity frameworks found in the literature study to show how these capacities develop during the transformation process.

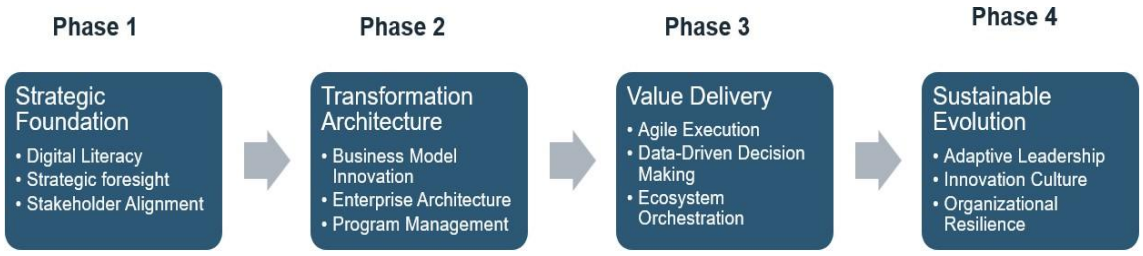

Figure 9. *Plan for Transforming Organisational Capabilities*

Phase 1

In the **Strategic Foundation** phase, the organization develops core capabilities that serve as the bedrock for successful transformation. These capabilities ensure readiness to navigate digital disruption and align the organization toward a shared vision.

Digital Literacy: Knowledge of, and facility in expressing thoughts on, the long-term effects of new digital technology, shifting business structures, and consumer habits. This allows for the prioritisation of efforts and the making of educated decisions.

Strategic Foresight: Being ability to foresee trends that might cause disruption, imagine other futures, and then turn these ideas into tactics that work in the long run

Stakeholder Alignment: Engaging and uniting various stakeholders behind a single vision is crucial for getting the commitment, support, and resources needed to successfully execute change activities.

Together, these capabilities provide a strong foundation for guiding the organization through change, making strategic choices, and building consensus across all levels.

Phase 2: Transformation Architecture

In the **Transformation Architecture** phase, the organization focuses on capabilities that translate strategic vision into a practical and actionable design for the future operating model. Key capabilities include:

- **Business Model Innovation:** The skill of conceptualising, prototyping, and refining novel business models that make creative use of data and digital technology to generate, distribute, and monetise value. With this skill, the company may reevaluate its methods and discover untapped avenues for expansion.
- **Enterprise Architecture:** Ability to specify, incorporate, and coordinate the organisational, technological, and operational parts needed to back the digital business model. For a smooth transition, it's important to have an enterprise architecture that aligns technology, processes, and organisational structure.
- **Transformation Program Management:** Competence in leading large, interconnected transformation projects from start to finish. Efficient execution of projects, management of risks, and results that stay aligned with strategic goals are all guaranteed by this skill.

Phase 3

In the **Value Delivery** phase, the organization develops capabilities that enable effective execution and the realization of measurable value. Key capabilities include:

- **Agile Execution:** Being able to use agile methodologies and continuous delivery strategies to quickly produce value via self-organising, cross-functional teams. This guarantees that projects are carried out in a flexible and responsive manner.
- **Data-Driven Decision Making:** Skills in making strategic and operational choices, optimising processes, and improving customer experiences via the use of data and analytics. Instead of assumptions, insights are used to influence decisions.

- **Ecosystem Orchestration:** Capacity to establish, oversee, and organise customer, supplier, and partner networks for the purpose of driving innovation and co-creating value. Cooperation and ecosystem-wide effect maximisation are guaranteed by robust orchestration.

Phase 4

In the **Sustainable Evolution** phase, the organization focuses on capabilities that ensure long-term adaptability, innovation, and resilience. Key capabilities include:

- **Adaptive Leadership:** Being able to steer teams through times of uncertainty while also enabling them to learn from their mistakes and take calculated risks is a key leadership competency.
- **Innovation Culture:** The ability to foster an environment that values innovation, creativity, and experimentation via the use of systems, procedures, and rewards that promote and reward these traits.
- **Organizational Resilience:** Keeping one's performance level high in a constantly changing environment via the use of agility, learning, and resilient processes while anticipating, absorbing, and adapting to disruptive change

The progression of organizational capabilities outlined here is directly tied to managing obsolescence risks. For example, low digital literacy and heavy dependence on obsolete IT infrastructure in the police case constrained organizational resilience. By developing Digital Literacy, Strategic Foresight, and ultimately Adaptive Leadership, organizations can not only overcome the immediate effects of obsolescence but also build the dynamic capabilities needed to sustain transformation over time.

Discussion

The findings clearly demonstrate that obsolescence in business capabilities comprising technology, processes, and organizational routines creates tangible risks to business services. The use of risk heatmaps

provided a compelling visual representation of these risks, particularly in the UK police forces case, where critical core capabilities depended on obsolete platforms like Oracle 8. These risks translate into increased operational costs, potential service failures, and reputational damage. Importantly, the analysis validates the need for a structured transformation roadmap addressing these capability gaps. The phased roadmap approach from establishing a strategic foundation to sustainable evolution allows organizations to prioritize urgent risks while building long-term resilience. [8] [9] The integration of capability development such as digital literacy and adaptive leadership throughout the roadmap underpins the success of transformation initiatives in overcoming obsolescence challenges. [10]

Conclusion

This paper has established a clear linkage between business capability obsolescence and the imperative for enterprise transformation. By integrating quantitative obsolescence risk assessment with a qualitative transformation roadmap, the study offers a robust framework for organizations to identify, prioritize, and mitigate capability risks. The approach not only highlights immediate operational vulnerabilities but also guides the systematic development of organizational capabilities essential for sustainable digital transformation. This work thereby advances both theoretical understanding and practical methodologies for managing obsolescence in complex enterprises. The empirical evidence and case studies reinforce the urgency of proactive capability renewal to secure future business performance.

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Disclosure of Interest

The authors declare that there are no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. Furthermore, no affiliations, memberships, or involvement in organizations with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript exist.

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