Design for Future: Strategic Planning and Design Innovation Framework for Digital Organizations

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Abstract

The number of factors affecting an organization's survival and performance can be overwhelmingly large and is increasing every day due to the fact that organizations are actively seeking varying touch points to gain competitive advantage. There is a plethora of current literature showing what an ideal organization should be like but most of them talk about specific modules rather than actually considering a holistic view of the organization's elements. This research identifies and talks about three crucial factors (in no particular order) that play a major role in an organization's sustainability: new product development, strategic planning and digital organization design. Design thinking has been used to interrelate these three factors and the role of design in a typical digital organization has been illustrated. A strategic planning framework based on scenario planning and design thinking has been proposed to aid the innovation and management practices within an organization in an easy to use and streamlined manner. The credibility of the proposed framework lies in the existing literatures from where the concepts like PESTEL analysis and scenario planning, which act as the foundation of the proposed framework, have been chosen for the analysis of the organization ecosystem. The novelty of this study lies in the way different concepts are interconnected from a design perspective and how designers can play a crucial role in the design and management of digital organizations. The linearly designed, strategic planning framework provides an easy to use set of guidelines for organizations looking to sustain in the market and trying to gain a competitive advantage via effective strategy building. There is scope to extend and customize this framework with respect to the changing needs of diverse economies.

Keywords: Strategic planning, new product development, digital organization, design thinking, design management

1 Introduction

1.1 What is a digital organization?

Digital technologies are disrupting industries and are redefining the ways through which organizations communicate, collaborate, provide and manage. Organizations are increasingly leveraging digital technologies for external and (or) internal operations to transform their culture, strategy and infrastructure to accommodate the different needs of its customers, employees and the market. They have started to recognize that by adapting to the evolving and progressively digital economy and by utilizing digital technologies in various business processes, organizations could achieve a competitive advantage.

According to Snow et al. (2017), a digital organization is a powerful combination of people, technology, and organizing ability that is well suited to today's economic and social environment. A digital organization is agile and houses individuals and teams who are facile with technology and who collaborate to make process improvements and develop new solutions. Collaborating entities are more and dependency on hierarchy is less in a digital organization. It has an actor oriented architecture based on continual learning and adaptation. An actor-oriented organization architecture is composed of three elements: (1) *actors* who can self-organize; (2) *commons* for knowledge sharing and accumulation; and (3) *protocols, processes, and infrastructures* that allows for multi-actor collaboration (Table 1) (Snow et al. 2017).

Table 1. Elements of an actor-oriented digital organization. (Source: Snow et al., 2017)

Element	Function	Examples
Actors	Perform work activities by self-organizing and collaborating	o Individuals or teams in an organization o Firms in a collaborative community o Citizens, firms, and municipal agencies in a smart city
Commons	Shared resources made available to actors to support their work	o Shared knowledge o Shared databases o Shared situation awareness
Protocols, processes, and infrastructures	o Infrastructures connect actors with one another o Protocols guide actor behavior o Processes that combine to create an agile organization	o Software apps that announce projects as well as the availability and expertise of actors o Shared norms and values concerning how actors should behave o Intra- and inter-organizational collaboration

Olano et al., (2016) from Arthur D. Little, the world's first consultancy, in their article *Defining the Digital Organizaton* state that the aim of transformation to a digital organization is to transform organizational functions to adapt suitably to digitalization rather than developing new functions in parallel to traditional functions. Sometimes there is a radical change in the functions of an organization due to digitalization, resulting in the requirement of new capabilities and core comptencies, eventually requiring new roles in the industry such as Chief Data Officer, Experience Specialist, Digital Innovator, etc.

1.1.1   Role of Design in a Digital Organization

To understand the role of design in an actor-oriented (Snow et al., 2017) digital organization, it is imperative to understand the work skills required by such an organization. Given below are the skills required by a digital organization (Davies et at., 2011).

a. Sense-making: Ability to determine the deeper meaning or significance of what is being expressed.
b. Social Intelligence: Ability to connect to others in a deep and direct way, to sense and stimulate reactions and desired interactions.
c. Cross-cultural Competency: Ability to operate in different cultural settings.
d. Computational Thinking: Ability to translate large amounts of data into abstract concepts and to understand data-based reasoning.
e. Media Literacy: Ability to critically assess and develop content that uses new media forms and to leverage these media for persuasive communication.
f. Trans-disciplinarity: Literacy in and ability to understand concepts across multiple disciplines.
g. Design Mind-set: Ability to represent and develop tasks and work processes for desired outcomes.
h. Cognitive Load Management: Ability to discriminate and filter information for importance, and to understand how to maximize cognitive functioning using a variety of tools and techniques.
i. Virtual Collaboration: Ability to work productively, drive engagement, and contribute as a member of a virtual team.

According to Davies et al. (2011), *design mind-set* is one of the core skills among others, required by a digital organization. It is the ability to represent and develop tasks and work processes for desired outcomes. Similarly, other skills (Davies et at., 2011) such as sense-making, social intelligence, and trans-disciplinarity have their roots in design thinking. Design thinking elements (Liedtka et al., 2017) such as deep empathetic understanding of the user's need and creation of heterogeneous teams are the key to user-centred design thinking and are analogous to sense-making/social intelligence and trans-disciplinarity respectively. Such overlap in the core competencies of a designer and skills required for a digital organization allows designers to become the facilitators of digital transformation of an organization.

1.2   Scenario Planning

Scenario Planning has as many definitions as the number of researchers and experts who have tried to define it but there is no one clear definition as to what scenario planning exactly is. This is mainly because the process changes from organization to organization and has been modified according to the organizational needs. Schoemaker (1995) has given a definition which appropriately brings out the essence of scenario planning— "a disciplined methodology for imagining possible futures in which organizational decisions may be played out." Scenarios are not meant to predict or forecast the future but instead are used to create many different plausible *futures* to achieve actionable insights which can eventually be utilized to form multiple strategies for different possible outcomes. Decision makers are supposed to think about the uncertain aspects of the future that would help in highlighting the ones which otherwise could have been overlooked (Schoemaker, P. J., 1995). Scenario planning was first used by the name of "futures-now" thinking by Kahn of RAND Corporation for researching new forms of weapons technology in the company (Chermack et

al., 2001). Later on in 1965, Royal Dutch Shell formally introduced this technique to replace the traditional forecasting methods that eventually helped them to handle the '73 oil crisis better than the others (Wilkinson, A., & Kupers, R., 2013).

A generic six-step approach to scenario planning has been developed by Wulf et al. (2010) after a thorough analysis of many such approaches and synthesizing their shared steps and essence. The six step approach (Wulf et al., 2010) is as follows:

   a. Definition of Scope: Identify core problems and frame analysis.
   b. Perception Analysis: Identify assumptions and mental models of the decision makers.
   c. Trend and Uncertainty Analysis: Discuss and evaluate relevant trends.
   d. Scenario Building: Develop scenarios based on key uncertainties.
   e. Strategy Definition: Deduct action plans for implementation.
   f. Monitoring: Monitor developments and challenge assumptions.

1.3   Role of Design and Scenario Planning in New Product Development

Scenario planning has been perceived as a means to gain sound knowledge about the underlying factors affecting the future rather than as a prediction of the future. Scenarios serve a two-fold purpose of a springboard for new ideas as well as a lens to evaluate new projects and ideas. Therefore, scenario planning can be used as a tool for the ideation of new products where there is change, opportunity and uncertainty ahead. Scenario planning also forces the organizations to think critically about the current strategies and make difficult decisions in risky scenarios. It positively disrupts conversations around creation of new products to provide insights into something different from the present. Derbyshire and Giovannetti (2017) have developed a 9-step scenario based intuitive-logic (IL) approach (Table 2) to NPD which helps in mitigate the high uncertainty associated with NPD. Such IL approach needs quantitative models as well as socio-economic factors to be taken into account.

Table 2. Scenario-based NPD Intuitive Logics Approach to mitigate uncertainty in NPD (Source: Derbyshire, J., Giovannetti, E., 2017)

Stage	Scenario-based NPD IL approach
Stage 1: setting the scenario agenda	Defining the type of new product under consideration and its potential target market.
	Consideration of present assumptions as to why the innovation of the considered new product might be a good idea. Application of simple forecasting techniques to understand implications, if unchanged, for trends related to the potential market's future development. Descriptive statistics to describe e.g. present market share.
Stage 2: determining the driving forces	Eliciting a multiplicity of wide-ranging forces.
Stage 3: clustering the driving forces	Explicit use of causal loops in Influence Diagram, so as to consider effect of positive feedback and self-reinforcing processes on diffusion of considered new product.
Stage 4: defining the cluster outcomes	Defining two extreme, but plausible and hence possible, outcomes for each of the clusters over

	the scenario timescale.
Stage 5: impact/uncertainty matrix	Ranking each of the clusters to determine the critical uncertainties i.e. those clusters which have both the most impact on the issue of concern and also the highest degree of uncertainty as to their resolution as outcomes.
Stage 6: framing the scenarios	The critical uncertainty should always represent 'market-acceptance/non-acceptance' of the considered new product.
Stage 7: scoping the scenarios	Building a broad set of descriptors for each of the four scenarios.
Stage 8: developing the scenarios	Use of Critical Scenario Method to identify important stakeholder and power-related issues, such as the potential behaviour of powerful dominant producers and distributors. Consideration of how actions of these powerful actors may prevent initial market-acceptance, and then enable or inhibit full diffusion of considered new product.
Stage 9: identifying the 'critical threshold' for diffusion	Use of advanced diffusion-modelling techniques, which focus on social-network and contagion effects, to identify the 'critical threshold' point at which the new product's diffusion would be self-reinforcing, based on the social, power-related, cultural and other factors considered in the prior eight stages. Consideration of the specific p and q parameters to be used in the diffusion model. Consideration of diffusion of analogous products, but also consideration of how and why the diffusion of the considered new product may play out differently from that of these analogous products. Creation through modelling of a specific, expected diffusion curve for the particular considered scenario. Comparison can then occur across the four created scenarios in terms of the nature, extent and speed of the diffusion of the considered product.

On the other hand, in the recent times, the scope of the role that designers play in the NPD process has increased -- way beyond specific design activities (Perks et al., 2015). Perks et al. (2015) have explored and analyzed multiple case studies to identify three key roles that designers may play in an organization's NPD process:

1.3.1 Designers as Functional Specialists:

In this type of role, designers are limited to their conventional roles and are more often than not, seen as a resource. They do not interact with any other domain of the organization and work within highly controlled environments. As a result, the creativity of designers is not

tapped into, almost leading to a restriction of innovation accompanied with a design - marketing conflict.

1.3.2 Designers as a part of a Multifunctional Team:

In this type of role, designers have more cross-functionality and flexibility. Designers have a greater control over the product development process and there is a strong emphasis on the communication of information and ideas within the team in order to avoid conflicts and increase cross-functionality.

1.3.3 Designers as NPD process leaders:

As a NPD process leader, a designer essentially drives the development process. They actively take part in critiquing the existing market strategies in order to propose new perspectives. This role offers them the highest liberty to influence the NPD process right from the ideation up to marketing.

The NPD process is at the core of innovation within any digital organization. It drives change and therefore, prevents the organization from becoming stagnant in the market (thereby preventing the organization from losing its financial value). A holistic approach to the NPD process is essential for a digital organization to thrive in the market. Design, can no more play a compartmentalized role because it influences all aspects of the product development process. Clearly, design is integral for the innovation index and eventually the good health of a digital organization.

1.4 Strategic Planning

Top management around the world consistently rate strategic planning as one of the most important management tools (Rigby, D., & Bilodeau, B., 2007). Among the many definitions of strategic planning, Steiner (2010) took four different approaches to define it. One of them was strategic planning as a process— "Strategic planning is a process that begins with the setting of organizational aims, defines strategies and policies to achieve them, and develops detailed plans to make sure that the strategies are implemented so as to achieve the ends sought. It is a process of deciding in advance what kind of planning effort is to be undertaken, when it is to be done, how it is to be done, who is going to do it, and what will be done with the results."

A 10-step strategic planning process (McKay, E. G., 1993) is given by the World Bank Group:
   a. Agree on a strategic planning process.
   b. Carry out an environmental scan (internal and external organization).
   c. Identify key issues, questions, and choices to be addressed as part of the strategic planning effort.
   d. Define or review the organization's values, community vision, and mission.
   e. Develop a shared vision for the organization.
   f. Develop a series of goals or organizational status statements which describe the organization in a specified number of years – assuming it is successful in addressing its mission.
   g. Agree upon key strategies to reach the goals and address key issues identified through the environmental scan.
   h. Develop an action plan that addresses goals and specifies objectives and work plans on an annual basis.

i. Finalize a written strategic plan that summarizes the results and decisions of the strategic planning process.
j. Build in procedures for monitoring, and for modifying strategies based on changes in the external environment or the organization.

1.5 Need for this research

There has been an emergence of a number of new theories and research regarding design and design thinking's role in management practices lately and there already are a humongous amount of frameworks and models established for management practices in the industrial landscape. There are little/no such frameworks that combine design in a standard management framework to augment the process. This research aims to fill the gap of successfully combining design with standard management frameworks and highlighting the role of a designer in such processes. As is evident from the background study, there is a relation between the important concepts of Strategic Planning, Scenario Planning, Digital Transformation, and Design Thinking in that they (one or the other) are central to the optimal functioning and competitive advantage gain of an organization. Also, innovation is the key driver of successful organizations and the factors discussed above play a crucial role in innovation management. Figure 1. shows the three key aspects of and organization that this research attempts to combine through scenario planning and design thinking.

Strategic Planning

Digital Transformation

New Product Development

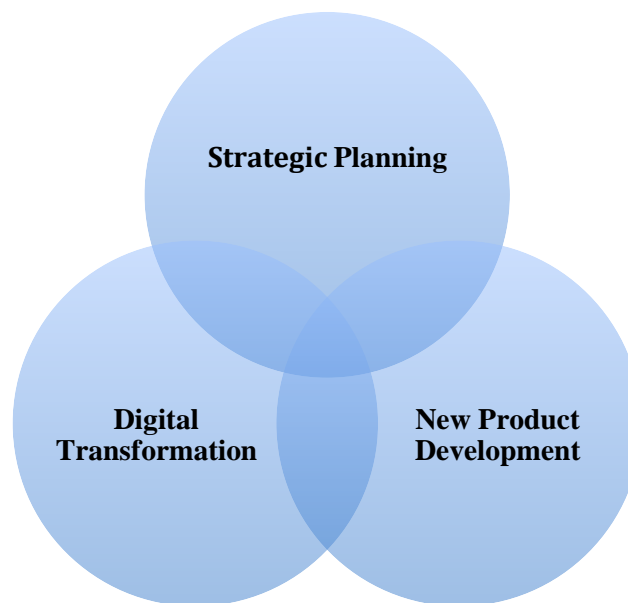**Figure 1. Three important aspects of a successful digital organization**

2 Aims and Objectives

The aim of this study is to design a strategic planning and innovation framework for digital organizations to ensure growth and sustainability by providing precise guidelines on effective strategic management including digital transformation and new product development. In order to accomplish this, it is important to:

- Identify current skills and strategies of organizations to manage and plan the growth and innovation and to sustain in the competition
- Identify current new product development techniques and innovation frameworks
- Combine multiple factors/frameworks to generate an augmented formal framework to better plan and innovate in an organization

The first two objectives have already been accomplished in the background study for this research; therefore, we will focus on the third objective and the definition of the framework in the rest of this paper.

3 Methodology: Combining Design Thinking and Scenario Planning

There are numerous frameworks and processes laid out for strategic planning, scenario planning and design thinking. This section will build upon and combine such already existing frameworks to formulate a formal strategic planning framework with a focus on design innovation and strategic planning in a digital organization. Design thinking plays a key role in today's organizations that focus on innovation through a great product-customer fit (Kumar, V., 2009). Innovation in an organization can be achieved in new product development and organization design among many others. Therefore, the framework shall have NPD and organization design elements to justify the *innovation* in 'Innovation Framework'. Scenario planning on the other hand has been used by many to develop multi-faceted frameworks such as for new product development (Derbyshire, J., & Giovannetti, E., 2017) and strategic planning (Wulf et al., 2010).

Wulf et al., (2010) in their paper, "A Scenario Based Approach to Strategic Planning" have defined a formal framework for strategic planning, the roots of which lie in scenario planning. In their paper, they attempt to draw parallels between the four major requirements for a strategy creation framework (namely, multiple options, multiple perspectives, systematic tool based processes and flexibility) and the steps involved in scenario planning (namely, scope definition, perception analysis, trend & uncertainty analysis, scenario building, strategy definition and monitoring) (Wulf et al., 2010). A traditional style planning framework has been provided by the World Bank Group in their 10-step guide (McKay, E. G., 1993) to strategic planning. These research can be used to obtain a basic strategic planning guideline to be used as a foundation for further addition.

Liedtka & Ogilvie (2012) demonstrate a design thinking framework for corporate managers who can use the simple guidelines of the approach without any external help from designers to drive management processes. This research highlights the importance of design tools for a manager who can use them in any process. These guidelines and tools could be used to augment the strategic planning process and make the foundation discussed in the previous paragraph more functional, inclusive and sophisticated.

Similarly, different practices guidelines have been combined to obtain a linear process strategic planning framework discussed in the next section.

4 Framework

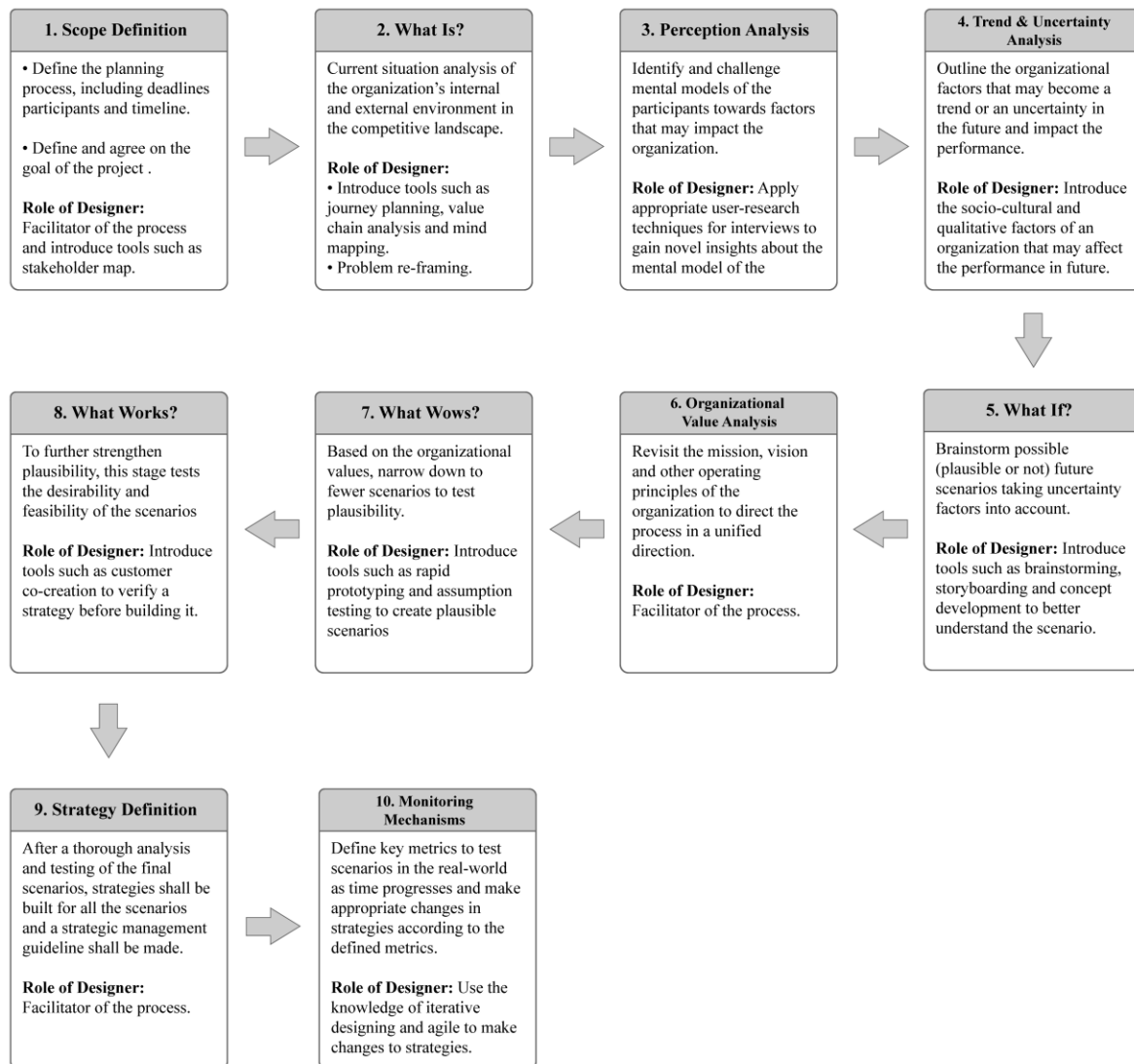### 4.1 Overview of the Framework

The framework is a 10-step linear process (Figure 2.), each step having a particular objective to be accomplished. Each step highlights a design function which augments that step further and since designers can act as process facilitators in NPD process which has multifunctional teams (Perks et al., 2015), it is hypothesized that designers would be more efficient to bring in

the design thinking tools in this strategic planning process rather than the managers practicing themselves due to the comprehensive nature of the framework and also the need of designers to facilitate the whole strategic planning process. This framework will provide organizations a comprehensive guideline structure to follow and is more elaborate (because of breaking down into more fundamental processes) than similar frameworks, allowing non-experts/non-management personnel to use and understand it as well. It is different from other scenario-based frameworks because the scenarios in this framework go through a 3-step screening process to automatically derive plausible scenarios in a strategic manner, rather than deciding beforehand which scenarios are plausible and which of them are not.

1. Scope Definition	2. What Is?	3. Perception Analysis	4. Trend & Uncertainty Analysis
• Define the planning process, including deadlines participants and timeline. • Define and agree on the goal of the project . **Role of Designer:** Facilitator of the process and introduce tools such as stakeholder map.	Current situation analysis of the organization's internal and external environment in the competitive landscape. **Role of Designer:** • Introduce tools such as journey planning, value chain analysis and mind mapping. • Problem re-framing.	Identify and challenge mental models of the participants towards factors that may impact the organization. **Role of Designer:** Apply appropriate user-research techniques for interviews to gain novel insights about the mental model of the	Outline the organizational factors that may become a trend or an uncertainty in the future and impact the performance. **Role of Designer:** Introduce the socio-cultural and qualitative factors of an organization that may affect the performance in future.

8. What Works?	7. What Wows?	6. Organizational Value Analysis	5. What If?
To further strengthen plausibility, this stage tests the desirability and feasibility of the scenarios **Role of Designer:** Introduce tools such as customer co-creation to verify a strategy before building it.	Based on the organizational values, narrow down to fewer scenarios to test plausibility. **Role of Designer:** Introduce tools such as rapid prototyping and assumption testing to create plausible scenarios	Revisit the mission, vision and other operating principles of the organization to direct the process in a unified direction. **Role of Designer:** Facilitator of the process.	Brainstorm possible (plausible or not) future scenarios taking uncertainty factors into account. **Role of Designer:** Introduce tools such as brainstorming, storyboarding and concept development to better understand the scenario.

9. Strategy Definition	10. Monitoring Mechanisms
After a thorough analysis and testing of the final scenarios, strategies shall be built for all the scenarios and a strategic management guideline shall be made. **Role of Designer:** Facilitator of the process.	Define key metrics to test scenarios in the real-world as time progresses and make appropriate changes in strategies according to the defined metrics. **Role of Designer:** Use the knowledge of iterative designing and agile to make changes to strategies.

Figure 2. Formal Strategic Planning Framework for a Digital Organization based on a combination of Design thinking and Scenario Planning approach

4.2 Implementation of the Framework

4.2.1 Step 1: Scope Definition

This is the pre-planning phase in which the strategic planning process elements are defined such as the overall goal and objective of the planning, participants involved, deadlines and

time required, level of business upon which strategy is to be built. This stage is essential in the respect that it mitigates the fuzziness during the initiation of the process and gives a definite direction to the members.

Tools that could be used:
    a. Framing checklist (Wulf et al., 2010)

Role of Designer: Introduce Stakeholder Map to define the different stakeholders involved in the process (Chasanidou et al., 2015).

4.2.2 What Is?

This step is included in the process because Strategic Planning, being a future-driven process, may intimidate managers to jump to prediction and future scenario building without considering what the current/present situation is. According to user-centered design, knowing the current scenario is immensely helpful before delving deep into any problem/process. This step is also responsible for inculcate innovation in the process— by defining metrics, analysis against which shall provide insights, complying with which can result in true innovation. For example, if a new product strategy is the aim of the strategic planning process, the existing products of the organization should be compared against some key metrics which, if complied with, will result in an innovative product.

For the purpose of this research, 3 types of analysis are shown in Table 2. (The 3 columns are unrelated to each-other):
    a. Innovation in NPD through product feature analysis: Checkpoints that validate if a product is useful or not or to what extent (Bacciotti et al., 2016).
    b. Skills in a Digital Organization analysis: More skills show more smooth transition of the organization into a digital organization (Davies et at., 2011).
    c. External factor analysis using PESTEL: It is a widely accepted framework for strategic management because it helps screen macro factors that would affect the working environment of organizations (Ziout, A., & Azab, A., 2015). The presented factors have been picked from the list of PESTEL factors after thorough brainstorming (Carpenter, M.A, and Sanderse, W.G., 2009).

Role of Designer:
- Introduce journey mapping, value chain analysis and mind-mapping (Liedtka, J., & Ogilvie, T., 2012)
- Problem-reframing (if required) after the analysis.

Table 3. Checkpoints for internal and external organization analysis in the present scenario.

Product Feature Analysis	Skills required for a Digital Organization	PESTEL Analysis for analysis of external factors
Fulfilled needs: Quality and quantity of the expected outcome.	Sense-making: Ability to determine the deeper meaning or significance of what is being expressed.	Political Factors: Antitrust laws, employment laws, data protection laws, competition regulation within the market, tax policy, intellectual property law and consumer protection & e-commerce.

Versatility of use/adaptability: Suitability of the product according to different demands and adaptability of the product in diverging conditions .	**Social Intelligence:** Ability to connect to others in a deep and direct way, to sense and stimulate reactions and desired interactions.	**Economic Factors:** Consumer behavior, market competitiveness, interest rates, corporate taxation policies, labor costs, overall level of debt, banking policies, phase of the economic cycle and trade policies.
Reliability/safety: Controllability of the system in order to obtain the expected outcomes.	**Cross-cultural Competency:** Ability to operate in different cultural settings.	**Social Factors:** Attitude towards consumerism, susceptibility to influence, resistance to uncertainty, resistance to change & new trends, media influence, dominant communication technology, attitude towards management practices and economic inequalities.
Ease: o The reduction of the information and skills to be gathered during the product life cycle. o The ease of acquiring the product, due to market penetration and distribution policies.	**Computational Thinking:** Ability to translate large amounts of data into abstract concepts and to understand data-based reasoning.	**Technological Factors:** Emerging technologies, efficiency of emerging technologies, methods of information exchange, rate of innovation, change in technology incentives, volume of online transactions, rate of adoption of technologies, automation of businesses and research & development activity.
Aesthetics/style/ethics: Customize the product or certain properties.	**Media Literacy:** Ability to critically assess and develop content that uses new media forms for persuasive communication.	**Environmental Factors:** Electronic waste disposal regulations, energy consumption regulations, Environmental CSR.
Quickness: o The reduction of time to be waited before the functioning of the product delivers the expected outcomes. o The limitation of the time required to perform operations.	**Trans-disciplinarity:** Literacy in and ability to understand concepts across multiple disciplines	**Legal Factors:** patent laws, government control on business activity, privacy and data security laws, unfair competition and antitrust laws
Cheapness: o Product/service cheapness.	**Design Mindset:** Ability to represent and develop	

o Accessories cheapness. o Cheapness of various activities during product life cycle.	tasks and work processes for desired outcomes	
Comfort/ergonomics: o The absence of bother for the people. o The comfort of use, the ergonomics, the manageability.	Cognitive Load Management: Ability to discriminate and filter information for importance, and to understand how to maximize cognitive functioning using a variety of tools and techniques.	
	Virtual Collaboration: Ability to work productively, drive engagement, and contribute as a member of a virtual team	

4.2.3 Mental Model Analysis

The use of this step is to challenge the preconceived notions and mental models of the process participants towards the factors affecting the organization. The managers and executives reveal their perception towards the factors to uncover any overlooked elements. Ideally, at the end of this step, the participants should have no biases and a clear mind to evaluate different situations and scenarios equally.
Tools that could be used:
   a. 360-degree stakeholder feedback (Wulf et al., 2010)
Role of Designer: Employ user research techniques to make the process of uncovering biases among the managers easier.

4.2.4 Trend and Uncertainty Analysis

After the biases are removed and the participants are on a comparable level of unbiased analytical level, participants shall now identify trends and uncertainties regarding the product usage or organization in general that may affect the performance of the organization in the future. PESTEL factors are a good starting point for such analysis.
Tools that could be used:
   a. Impact/Uncertainty Grid (Wulf et al., 2010)
Role of Designer: Bring in the qualitative elements to the impact/uncertainty analysis to achieve a holistic idea of the future scenarios, both qualitative and quantitative.

4.2.5 What If?

This is an originally creative step but is disciplined and process driven in which participants and managers explore new ideas and scenarios based on the impacts and uncertainty factors without thinking about plausibility and relevance just yet. This is to ensure that good ideas are not left out due to restrictions. The groups together form collaborative concepts based on a shared understanding of the organization rather than doing so in isolation.

Role of Designer: Introduce proper brainstorming, storyboarding/storytelling and concept development techniques among the participants.

4.2.6 Organizational Value Analysis

After obtaining numerous concepts and scenarios addressing the organization influencing factors, it is a good idea to revisit the operating principles, community values, mission objectives and vision of the organization to prohibit the team from getting lost in the new ideas and to stay on track with a narrowed down directions. This step limits the number of scenarios obtained in the previous step and only those scenarios which align with the organization principles are taken forward.

4.2.7 What Wows?

This is a design dominant step in which the selected scenarios are further shortlisted based on rapid prototyping and assumption testing, facilitated by the designer. Through these techniques, decisions can be taken about which scenarios need to be further shortlisted. This step ensures that the scenarios are prototyped to as much extent as possible in a short amount of time to get a better idea of the plausibility of the product. Rapid prototyping also eased the process of assumption testing which defines the key metrics/assumptions upon which the success of the product depends. This second step screening process gives us plausible scenarios which can be taken further towards strategy building.

4.2.8 What Works?

This step is crucial if the strategic planning process is being carried out to formulate a new product strategy. This step takes the plausible scenarios one step further to validate the actual usefulness of the scenario in the real world through design thinking based customer co-creation techniques. Prototypes built in the previous steps are tested and modified in the customer co-creation process along with gathering customer feedback on the usefulness and need of the product and its features. This is a practical process and brings out the shortlisted scenarios from the realm of theoretical validity into real-world validity. Even if planning is not happening for a NPD strategy, this step still stands valid and can be used to incorporate real elements (environmental or human) to test the plausible scenarios and gather their inputs about the same.

4.2.9 Strategy Definition

After the 3-step scenario screening process to gain plausible scenarios, specific strategies for the management and fulfilment of those scenarios are to be laid down. Current strategies should be tested against the scenarios and improvements should be made if there is inadequacy. New strategies can be compared on many fronts such as feasibility, appropriateness, value, cost-benefit, etc. This should be followed by proper organization plan and responsibility distribution and a step-wise, broken into fundamental elements, strategic management plan to accomplish the goal.
Tools that could be used:
   a. Strategy Manual (Wulf et al., 2010)

4.2.10 Monitoring Mechanisms

This is an ongoing process in which the strategies are constantly monitored against the real-world scenarios and build-ups and are analyzed for their accuracy. It's impossible to create perfect strategies for the future every time (exceptions may exist) through plausible scenarios and hence continuous evaluation and modification of strategies is required for the organization to adapt to the ever-changing world.
Tools that could be used:

    a. Scenario Cockpit (Wulf et al., 2010)

Role of Designer: Exploit the agile method and iterative approach of design thinking to constantly aid in improving strategies with every new real-world change.

5 Conclusion

Aspiring to devise a formal and easy applicable framework that taps into the assets of scenario based planning and the role that designers can play in the processes of new product development and strategic planning, this paper presents an innovative framework that can enable digital enterprises to drive towards growth and sustainability in a defined and structured fashion. Existing frameworks for new product development and strategic planning have been exploited because of their reliability and credibility. As shown in the framework, many factors influence a digital organization's sustainability. A limitation of this framework is the assessment of proposed set of guidelines in quantitative terms. The framework is highly subjective and its usefulness cannot be defined (as of now) in numbers. Therefore, we call for more research into the implementation of the proposed framework and successful case studies to be documented.

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