

A Catalyst for the Transformation from Personalized Digital Medicine to Personalized Medicine

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Description

Digital and technical solutions have been included into the area to foster innovation and the creation of new information since personalised medicine crosses multiple disciplines to comprehend and address common, complex, or rare problems in human health. The open innovation paradigm offers a strategy for respectfully managing the disruptive change that many businesses in the biomedical sector have faced in recent years as a result of the COVID-19 pandemic and the digital transition. In this essay, we concentrate on the way that this paradigm has accelerated the changeover from traditional medicine to personalised digital medicine in a busy research hospital. Results, difficulties, and methods are discussed. The goal of this case study is to demonstrate how OI solutions can be used to manage urgent healthcare requirements while promoting sustainability. In the ecosystem of data available for patient care, the integration of digital technologies and the Internet of medical things constituted a crucial filter for controlling the varied but essential health markers, which would otherwise only be accessible through a personal visit. Real-time remote patient monitoring became necessary, which prompted a steady digitalization of clinical workflows. DM inevitably involves a multi-dimensional, multi-setting dialogue among doctors, researchers, patients, caregivers, clinical care providers, regulators, policy makers, medical device companies, data scientists, engineers, funders, etc. in order to evaluate any potential scientific and technological quality and effectiveness. DM has the ability to reinvent the prevention, prediction, and participation of concerns relevant to the patient throughout the entire care process as an immediate result of the breadth of the cross-fertilization involved. Molecular targeted medicines, high-throughput biotechnologies, the validation of response-predictive biomarkers, and the creation of precise prognostic tools are only a few examples of the "innovation boost" that undoubtedly supports personalisation.

A customised DM does not, however, result from the simple combining of digital solutions and clinical data since the researcher or clinician must be able to comprehend how to use these solutions by developing new abilities. In this essay, we introduce and discuss the open innovation paradigm as a driver of the shift from project management to product development management in biomedical enterprises. We will use the case study of an Italian research hospital as a quantifiable illustration of how an organization can increase its scientific and "market" influence by developing new procedures, products, and professional competencies. In order to establish the proper environment for reasoning, we will also provide more background information regarding DM. Innovation can result from a variety of cognitive inputs, including the need for adaptation to a difficult circumstance, a demand that has to be addressed, and a serendipitous discovery. All of these seeds of innovation have

the potential to grow into priceless assets for the research and development that manages them from concept generation through go-to-market strategy.

According to organisational theories, every organisation is a producer and a transmitter of knowledge and is thought to be a complex phenomenon. Because living systems must constantly adapt to the stimuli of their internal and external environments in order to survive, biology helps us understand that knowledge is always a co-creative process co-developed through open partnerships. Cognition is the foundation of life itself [1]. The capacity to integrate market orientation to promote the creation of various cognitive forms also plays a significant role. Relationships are strong corporate resources, thus a company that is aware of its core strengths can boost its creative potential by relating to others to produce new knowledge, according to the Resource Based Theory. The key to an organization's competitive advantage is knowledge. It also comprises the business's ready-made services. As a consequence, biomedical organisations are able to both develop new information about strategic alliances and value current expertise. Producing scientific findings and health services entails creating meaning since they contribute to the interpretation of existence and living in the conversations among various stakeholders [2].

The central idea of OI, a paradigm described as "the purposeful use of internal and external knowledge to accelerate internal innovation and expand markets for the outer use of innovation," is that opening to new realities and languages becomes crucial for the advancement of biomedical knowledge [3]. The OI paradigm is currently being used by numerous biomedical companies as a co-evolutionary tactic. This paradigm's assimilation into the field happens in the midst of two historically unusual occurrences. The first one was digital transformation, which involves gradually integrating new digital solutions into existing services and systems [4]. A closed model seemed less effective to compete in a complicated and rapidly changing world because incorporation forced professionals to acquire new skills and literacy, even for PM experts. The COVID-19 epidemic, which compelled firms to embrace novel methods was the second event that intensified the need for outward openness. The globe was forced to respond quickly to difficulties like real-time decision-making and business continuity in new collaborative methods that transcended organisational boundaries as a result of this event's disruptive developments. Confidentiality clauses must be used to safeguard the invention process, which is frequently managed by experts who assure the exchange of intellectual property and its protection. Organizations train their employees to keep an eye on these interactions, often with the help of specific divisions or departments [5].

Organizational innovation invariably affects various aspects that might be important to individuals who are a part of it. Modifying attained balances is necessary for this, which occasionally elicits conflicted emotional reactions. Unanticipated encounters can produce previously unseen knowledge. Additionally, establishing a network of knowledge-based trust and values might lessen the likelihood of opportunistic actions. When deciding whether to use the OI paradigm, biomedical organisations and researchers interested in PDM should keep in mind that the scalability of an OI strategy depends on the organization's structure and dynamics as well as the relational/territorial network in which it is embedded. The cost of particular trials, target therapies, diagnostic tests, or information technologies could widen the gap between those who can afford PM treatments and those who cannot. Socioeconomic determinants are also important in terms of innovation priority, to provide and give fair opportunities to PM solution for patients and institutions.

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Conclusion

Relationships are the foundation of human growth and care, thus they are necessary for both surviving and caring for patients' fragility. To achieve this. By introducing efficiency and accountability to the health systems, this improved personalised treatment would undoubtedly transcend beyond the technology hoopla. Our article is an effort to confirm that employing OI methodologies could assist in managing the environmental needs while producing development that is accountable and sustainability-focused inside biomedical enterprises.

Conflict of Interest

None.

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