ABSTRACT

Does transforming ideas and discoveries into innovative products that improve patient outcomes or delight customers and consumers while reducing cost and improving ROI excite your shareholders? The answer is obvious; the solutions may not. For science-based companies, accelerating innovation cycles would result in shaving years and millions of dollars in expense from product R & D to delivery.

Accelerating innovation cycles requires a major shift from current business, technology and regulatory models. So, is innovation without transformation insanity?

To fast-track innovation, companies need to be open to new ideas and have awareness of new and emerging systems and technologies. They must devise the means to create a harmonized approach to managing scientific, process and regulatory intelligence across the product lifecycle. Shifting from point solutions, that only address the needs of a specific department or function, to an integrated innovation-based approach may provide the solution.

When companies transform innovation cycles by creating synergies across the organization, rationalizing or integrating point solutions, an integrated science-aware system becomes an investment rather than an expense.

IS INNOVATION WITHOUT TRANSFORMATION INSANITY?

Innovation can be defined simply as a "new idea, device, or method". Innovation can also be viewed as the application of better solutions that meet new requirements, unarticulated needs, or existing market needs. A more expanded definition of innovation is “something original and more effective that "breaks into the market or society".¹

In the medical products industry, innovation can be defined as the ability to consistently create and deliver high quality, safe, effective medicines, devices, treatments and cures to the patients in an efficient and timely manner.

In the consumer products industry, innovation can be defined as changes regarding the product or the service production process. It does not necessarily have an impact on the final product but produces benefits in the production process, generally increasing product...
IS INNOVATION WITHOUT TRANSFORMATION INSANITY?

Quality and productivity resulting in reduced costs, i.e. automobile produced by robots compared to that produced by human workers.ii

Insanity: “Doing the same thing over and over again and expecting different results” Albert Einsteiniii.

The cost of bringing a new product to market is high and even more staggering when you factor in the many iterations that do not make it.

According to the Pharmaceutical Research and Manufacturers of America (PhRMA), in 2003 the cost of bringing new drugs to market was estimated at $800 Millioniv. By 2016, these numbers had more than tripled to over $2.6 Billionv.

This trend is equally challenging in CPG. According to Forbes, the average cost of a new product that was successfully launched for the average CPG company in 2012 was $71 million. The R&D investment to bring a new product to market is roughly 4X the cost of five years agovi. As innovation cycles continue to accelerate, it has resulted in shorter product lifecycles but the promise of reductions in expense is still to be fully attained.

This business model is not sustainable!

The research and development (R&D) process in science-based companies is often complex, demanding and arduous - which means there are significant opportunities to transform it. According to industry data, the odds of successfully bringing a new drug to market are extremely low. Only 12% of drugs entering clinical trials ever make it to patients.vii Non-Life Science businesses average about a 75% project failure to ever reach market.viii

A primary challenge of innovation in science-based industries has been turning data into science and science into valid models. To address these innovation challenges, many companies turned to technology by digitizing processes. However digitizing ineffective legacy processes simply means that you do the same thing over and over again at an accelerated rate, while expecting different results.

Digitizing ineffective processes is accelerated insanity...

Imagine the value of having tools to reduce the number of failed compounds developed and progressing through the pipeline to finding the “one” winner. Are you aware that the answer may lie within reach?

STOP DIGITIZING, START TRANSFORMING!

For many companies, accelerating innovation cycles would represent a major shift from current business models. Many organizations lack a harmonized approach to managing scientific, process and regulatory intelligence across the product lifecycle. But is innovation without transformation madness? Pushing innovation through antiquated business,
technology and regulatory models is not effective. Accelerating innovation cycles requires the transformation and alignment in business, technology and regulatory models.

For the sake of “expediency”, many organizations have merely digitized rigid legacy processes, rather than transforming, integrating and implementing solutions designed to meet the needs of today’s global and collaborative ecosystem. In other words, they simply digitize inefficient processes, execute them faster and expect different results.

To accelerate innovation, shorten product development cycles and increase the rate of new product introductions, science-based organizations must transform their innovation engines. Gaining intelligence from the vast amounts of existing data may be the key to the next successful product.

Yet, it is not enough merely to have data, even very large amounts of it. What is needed is intelligence that can be applied to answering scientific, process and business related questions. Dark data is a type of unstructured, untagged and untapped data that is found in data repositories and is not being used, analyzed or processed and thus has little value to the enterprise. Dark data is useless data. On the other hand all visible data is not necessarily relevant.

For data to have value, and yield actionable intelligence, the underlying structure and meta-data must be actively managed. Visible data must be curated and supported across the entire process - R&D to manufacturing to commercialization (post market) AND back with a feedback loop. This would require the development and adherence to standard taxonomies across the total product lifecycle.

Connecting the data drives intelligence and supports continuous innovation and transformation. Read Innovation Through Digital Continuity-The Key To Bio-Pharma Transformation?

ORGANIZATIONAL CHALLENGES

Traditionally, companies have been structured in “silos” with each functional area responsible and incentivized to complete a specific step in the process. Once completed, the “end-product” is catapulted to the next functional area to perform the next step in the process. This pattern is repeated until the last step in the process is completed.

This sequential, waterfall approach leads to the proliferation of point solutions, customized to address the needs of a specific department or functional areas. Communication across silos is typically done via status reports conveying “old” information for steps already completed. In reality, this is a very inefficient model.
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A major challenge is not the availability of the technology but rather the need for vision and leadership, knowhow and discipline to drive the transformation. Many organizations suffer from organizational inertia, which makes it difficult to change and implement processes, standards and systems that enable accelerated innovation cycles. There is a need to foster an intelligence based culture whose goal is to consistently create and deliver high quality, safe, and effective products in an efficient and timely manner.

*In other words - a culture of innovation.*

TECHNOLOGY CHALLENGES

The transformation from stand-alone applications to integrated, holistic platforms requires not only the elimination of cultural and behavioral barriers but also technological barriers between functional areas. Innovative organizations must look at new platforms that support a unified approach rather than specific applications to solve a specific problem.

The implementation of a culture of innovation requires a fully integrated platform with a feedback loop throughout an organization. This can be a major adjustment for many science-based companies. However, moving to a model of focusing on a solution of digital continuity instead of process steps accelerates innovation. Decision makers think and execute differently, they act collaboratively and promote communication effectively. When the silos have been breached and the new model of connected intelligence has been applied across the entire lifecycle, the result is faster innovation and quicker growth.

Connecting useful data drives intelligence, supports innovation and streamlines decision making. This requires a Master Data Management plan and Governance to ensure that the underlying data structure retains integrity and is actively managed. A fully realized integrated platform approach can serve as the knowledge management framework that ensures collaboration and access to product and process information over the total product lifecycle.

Connecting data sources up and down the product lifecycle encourages cooperation and innovation. To be most effective, a feedback loop must be part of the ongoing communication. The resulting closed loop process is a collaborative and concurrent approach that allows science-based companies to leverage information for better decision-making and improved market outcomes while simultaneously supporting shorter innovation cycles.
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THE CHALLENGE OF INNOVATIVE SOLUTIONS

When companies realize that their disconnected labor-intensive paper solutions are not only time-consuming and error prone but costly in development, innovation and speed to market, they are faced with a myriad of challenges.

Where does one start? For science-driven companies this may be at the laboratory where ideas are turned into the next innovation and relevant data is foundational to the product development process. Identifying a unified lab system that not only replaces paper notebooks by digitizing the content but allows for a flexible, multi-disciplinary approach that includes all laboratory related capabilities in a connected manner improves information sharing/reuse, data protection, process documentation and overall productivity, enabling digital innovation and collaboration while reducing waste.

The optimal solution will include an eye towards innovation across the entire domain and throughout the product life cycle from Research and Development to Quality and Manufacturing.

An open platform allows a company to integrate data applications, processes and people across the organization as well as external organizations. Data sources can be integrated with data consuming applications from the business, manufacturing, laboratory and quality areas.

CONCLUSION

To remain competitive in today’s market, a company must continually look to the future. The “Aha” moments that spark the creation of a new product or process do not generally happen in a vacuum.

To retain their edge in the marketplace, pioneering companies need to share data consistently across the organization (and their partner ecosystem). The challenge is changing the focus of the corporation to one of technology-driven innovation.

With the cost of bringing new products to market tripling in the last 10 years, the current model is not sustainable!

The opportunity to transform innovation lies in turning data into science and science into valid models. To address “innovation challenges”, companies must shift from digitization to digital transformation. Digitizing ineffective legacy processes only serves to do the same thing over and over again at an accelerated pace, and expecting different results. Albert Einstein would likely call digitizing ineffective processes “accelerated insanity…”

Accelerating innovation cycles requires a major shift from current business, technology and regulatory models. So, is innovation without transformation insanity? Yes, it would so appear. Just as car manufacturers had to change their approach to manufacturing when robots became more sophisticated, Life Sciences, Consumer Products and other science-
based industries must transform and embrace new and emerging models, systems and technologies. They must create harmonized approaches to managing scientific, process, regulatory and market intelligence across the product lifecycle. Shifting to an integrated innovation-based approach may provide the solution while shaving years and millions of dollars in expense from R & D to delivery.

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