Front-end loading in new product development

**"Visualized and quantitative risk assessment
that supports the front-end loading system"
(Beyond the effects of the new coronavirus)**

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**Dear all concerned,
    Happy New YEAR!!**

In this year 2021, while pursuing front-end loading in new product development, I would like to mention visualisation and quantitative risks to aim for efficient development. I look forward to working with you.

Front-end loading system and development philosophy

At the heart of front-end loading is, which is a bit of a tricky way to say, a clear development philosophy about what needs to be done, and only then can we take a cross-organisational view and communicate about development.

The development philosophy includes "what (or Product)" and "how (or Process)" of a consistent supply process from development to production. Of course, philosophy is not the same as truth, but they may be the equivalent of an unwavering development process. In a sense, competition in business might be able to describe as competition in development philosophy. If an organisation's development philosophy is systematically unclear, then its activities will not mesh, and front-end loading will not be possible. The development philosophy also becomes the define the resources available to the company and its allocation.

In specifically, it is essential to decide at the outset what the business value is, what products and services should be developed to contain that value, how the technology should be built up for commercialisation, and how they should be produced and brought to market.

In other words, by clarifying our development philosophy, we can establish a front-end loading system. Then it will allow us to carry out all activities from product planning to shipping in straight through.

Visualisation and quantitative risk assessment to support the front-end loading system

If we liken the development of a new product to a project, there is a variety of causes and contexts for success or failure. And, I would say that most of them would be troubles caused by the vagueness of the development concept based on the development philosophy and the lack of skills in the execution process.

In the development concept, many development engineers and R&D personnel often neglect to visualise the items to be implemented at the start of the development

process and to assess their quantitative risks. In which is because there is the spell they chant,　"The result wouldn't be known until it is carried out." And, there are many cases that they even edit development specifications out as they are carrying it out.

　　　As a result, even if those are well prepared, the schedule is delayed, and the development budget is exceeded. In the execution phase, the uncertainty of the development concept leads to a rethinking of the development content, and the lack of skills of the person in charge leads to development errors, resulting in double suffering. To compensate for these two factors and to carry out the desired new product development, it is crucial to drop the development theme into the functions and components and to learn the necessary skills in development.

　　　In other words, the success or failure of new product development is almost determined at the development concept stage. Therefore, to clarify the process from theme creation to market launch and proceeding visualisation and quantitative risk assessment is a shortcut to more efficient development.

　　　However, most development engineers, once they have gained a certain level of experience, do not revisit the design basis documents at the start of each new product development. And, they often end up continuing with the development as an extension of the new product development carried out immediately before.
 Accumulating experience in development is indeed a wonderful thing and a treasure for development engineers. However, I assume they don't realise that this experience often can lead to arrogance before they know it. And, the visualisation and the quantitative risk assessment are the elements supporting it.