

Yves Litzelmann: How to handle virtual teams and proximity management versus remote management and teamwork

Mastering definition, a revolution

In a company with a strong technical culture, no one is indifferent to the word, definition. Defining the product is the primary concern for engineers in the research unit. In rows, we hear people talk about general/detailed definition, of managing the definition or of setup. In a word, mastering the definition of a product is a central stake for the company and its management.

The definition of a product is the result of the work done by people within an organization, following the golden rules of their trade, using a universal language to generate data that characterizes the product.

In the company's race towards competitiveness, performance, the transformation of the tools used to master the definition, especially through NITCs, has accelerated since the 1970s. So much so that it has deeply changed the four facets of the definition of a product, gradually taking them from a real world to a virtual world, and thus taking us from a real definition to a virtual definition.

A new universal language with virtual data

The era of the drawing board lasted until the end of the 1970s. Everyone worked in the same physical space and shared a universal language: 2D industrial design.

At the end of a workday, a team's manager could walk through the drawing boards, after the workers had left, to make sure that work was done, that projects were making progress. Thus, they had an idea of the progress made, of the problems faced. Thus, informed, s/he was able to make decisions. The proximity of people at work generates a strong social link, characterized by the team spirit in a monocultural environment. Definition data is close, on paper. Trade processes are transferred orally and not very formal; and the first sketch of the product is a real, physical model.

Starting in the 1980s, the universal language went from 2D industrial design to 3D representations made from computing calculations. It was the birth of the 3D CAD, a new universal language and the transfer of data went from the real world – paper – to the virtual world – computers. Each part of the product is defined with this new tool. It is no longer possible to see the product as a whole.

Each creator works behind a screen, carefully switched off every night before leaving the office. During his night round, the team manager can only see black screens. He isn't informed as well, and his decision-making abilities are lessened. He has to get closer to his workers to be informed.

The next step in our new revolution was the arrival of the digital model in the 1990s. From then on, it was possible to practice all of the product's assembly steps and its structure. The door is wide open for further optimizing the definitions (aerodynamic, kinematics of complicated mechanisms,

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ergonomics). With the digital mock-up, it is easier to handle big loads of data and to share them between the company's different departments and with outside industrial collaborators. Now, the team manager must be able to handle situations involving more and more different trades such as design, the methods, manufacturing, purchase, sale, customer service, and improve his knowledge of the outside cooperator.

The need to get the different trades physically closer surfaced in multidisciplinary project teams. To encourage dialogue, virtual reality centers were created and implemented. Before, the team manager reviewed physical models; now he organizes reviews of digital mockups in an immersed 3D environment with his 3D glasses. Management remains of a classical nature; only the language and data are virtual.

Trades' golden rules introduced in the virtual world

The 'knowledge' era started in the 2000s, adding trades' golden rules to the 3D CAD tools. It became possible to manage, throughout one's life cycle, the definition of a product, the definition of the factory bound to produce it, and the definition of associated services. Global steps to optimize the product and manufacturing methods are implemented and there is a revolution of the trades as sharing experts' knowledge is easier and spreading the results of a study is almost instantaneous. Skills-sharing is intensifying. Team managers must develop their ability to organize the network of experts inside the company and with other industrialists, and face faster preliminary research studies.

New forms of work organization

The strength of computing tools makes remote work easier. After the physical set gathering experts from different trades and different companies in a single physical space, we now have the virtual set whereby each industrialist can work in his own office all the while following the rules and using the resources used on the physical set. This disrupts the organization of labor and work methods. Teams are scattered all over the world, in different cultures, they work in a virtual mode in real time with collaborative tools dedicated to the trades. With the virtual set, it is possible to turn the best teams selected throughout the globe into a research unit.

How to reconcile proximity management and virtual teams? How to reconcile remote management and teamwork?

The success of the revolution in mastering the definition is confirmed by the time saved in products' development and production cycles. As any revolution, it changes habits and the way we work.

This success is also due to the respect and implementation of a few principles to reconcile proximity management and virtual teams as well as remote management and teamwork:

- Physically gathering teams from different cultures as early as possible via a development program. It is important to keep in mind that face-to-face communication is much more effective than virtual communication to build strong social links and encourage trust. Thus, it is highly recommended that the first phase of a project should be designed on a physical set so that the teams can know each other and like each other better.

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- Precisely defining tasks and processes in addition to objectives and assignments. Because people are away, managers have to hand more responsibility down onto small teams. Consequently, they have to be able to master, at their level, the design work and associated processes. Team managers step in during progress meetings to identify and handle registered malfunctions.
- Sharing a common language between the teams. Sharing a common language – 3D CAD – and implementing trades’ rules in the information system are prerequisites for the project to succeed.
- Having reliable collaborative tools. To encourage dialogue between the players, these tools have to use the trade’s language and the definition’s data structure, and work in real time.
- Giving managers and teams the possibility of physically meeting as often as possible. It is important to seize all opportunities to meet face to face to understand who is on the other side, how they work, their culture and their company’s culture.
- Preparing future managers to work in a multicultural environment. When training future managers, it is important to create learning situations, outside of the daily work environment, mixing people from different cultures. Thus, informal networks may appear and be activated at the right time for a program or project. Knowing each other beyond the professional sphere is essential.

In addition to implementing these few principles, a program is mostly a human adventure. Even though, for 40 years, new tools and organization modes have appeared and grown quickly, human behavior hasn’t really changed. A program’s success still goes through managers’ ability to arouse adherence with a common project, to give actions meaning, to create a climate of trust, to develop their teams’ skills.

In fact, only leadership can reconcile proximity management and virtual teams as well as remote management and teamwork.