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Voith's Transition from Product Provider to Solution Supplier

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Voith GmbH is a mechanical engineering company that created a new division called Digital Solutions in 2016. This division was created in order to lead the charge of the Industry 4.0 trends, as well as to adopt various automation products and services formerly handled by the three other Voith divisions: Voith Paper, Voith Hydro, and Voith Turbo. The emergence of this new division created a disruption within the organizational structure, which then lead to poor internal communication. Digital Solutions requires clear communication channels across all the divisions in order to be effective.

Keywords: Digitalization, International Business, Organizational Structure, Strategy

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Introduction

In a constantly changing world, firms in the industrial or engineering sector are forced to extend their portfolios to integrate alternative revenue streams. Voith GmbH is a 100% family-owned corporation with its headquarters in Heidenheim, Germany that has been operating in the mechanical engineering sector since 1867. With annual revenues exceeding €4.25 billion and 19,000 employees across 60 different countries, Voith is one of the world leaders of power transmission, paper processing units, and turbo machinery. The company is split into 4 divisions: Voith Turbo, Voith Paper, Voith Hydro, and Voith Digital Solutions (DS). Voith originated as a paper production company. It later embarked on the hydro division by way of a water turbine that was used to power the paper mill. In present day, Voith Hydro has a joint venture with Siemens that produces one-third of the world's hydroelectric power with turbines and generators. Evolving further, Voith Turbo was created because of the success the water turbines had, and the leaders saw an opportunity to increase their portfolio with gears that needed oil rather than water. The DS division was founded in 2016 and encompasses aspects of the other three divisions, while striving to lead the movement of the Industry 4.0 trends in such areas as cyber physical systems and centralized networks. Of the 1,500+ employees in DS, most are former members from the three other divisions. Additionally, various products and offerings that were found in Hydro, Turbo, or Paper, are now currently managed by Digital Solutions (Exhibit 1).

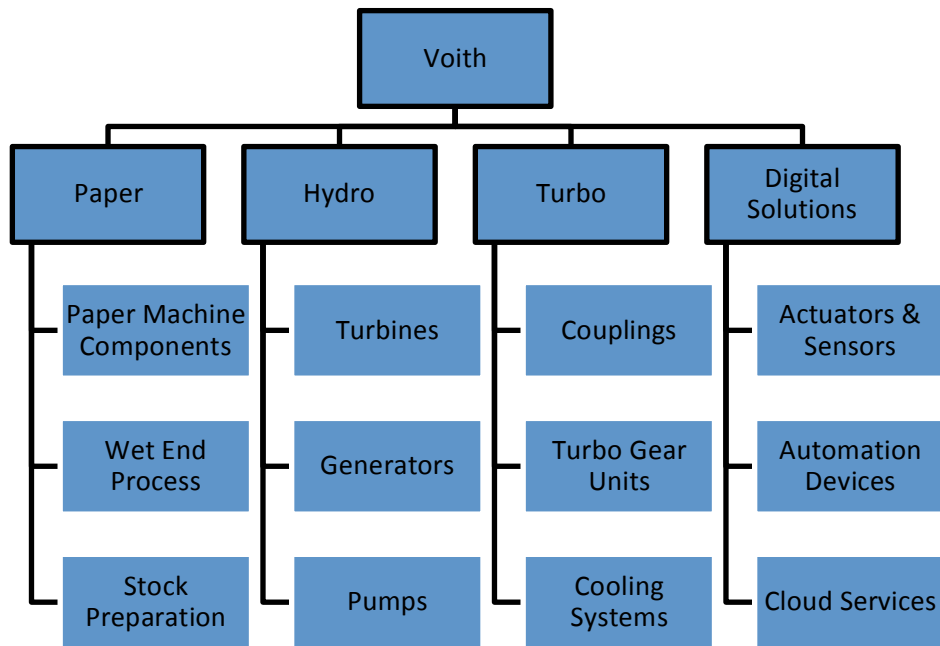


Exhibit 1

The decision to create a new division called Digital Solutions caused a number of disturbances within the company. The bulk of the DS division workforce is former members from the other Voith divisions. Even though this condenses a knowledge-diverse group of employees into one area, it also leaves many hierarchical blanks. This emergence simulates the beginning of a startup, but without having the luxury of low employee numbers and smaller scaled operations. Very seldom does one come across a brand new startup that has more than 1,500 employees in four month time period. Another challenge this erected division brings is with employees either on the brink of retiring, or who are at the stage of their career where adding new functions or tasks to their position would not benefit the employee or the company relative to the cost of time and resources. The “blank” spot in the organization chart comes between the Digital Solutions employee who has substantial knowledge on the Industry 4.0 trends, but who does not have not the company knowledge and industry experience that a veteran in one of the other three divisions has. With the absence of a constantly updated interactive organizational flow chart and a strong internal

communication system, employees are also left wondering who is in charge of which project and who has relevant information for that project (whether or not the information comes from within DS).

Voith has implemented many of the traditional methods for strengthening internal communication; however, the size and geographic range that Voith DS covers hinder the effectiveness of group events, internal newsletters, video simulcasts, etc. It is not easy to facilitate a weekly lunch with a team when there are members from all over EMEA (Europe, Middle East, and Asia). Another communicative challenge is data exchanging between Voith's divisions. Transparency in CRM (Customer Relationship Management) data, specifically, is lost due to the unseen value a department has on "relevant" information. Executives and account managers restrict access to certain data from departments that do not have any immediate or obvious reason to access that data.

One of the products that Voith Digital Solutions has adopted from another Voith division, Voith Turbo, is the AGT portfolio (Actuators and Governors of Turbo Machinery). This portfolio consists of I/H Converters, Way Valves, Servo Motors, Trip Blocks, and Control Systems (Exhibit 2, Voith Website).

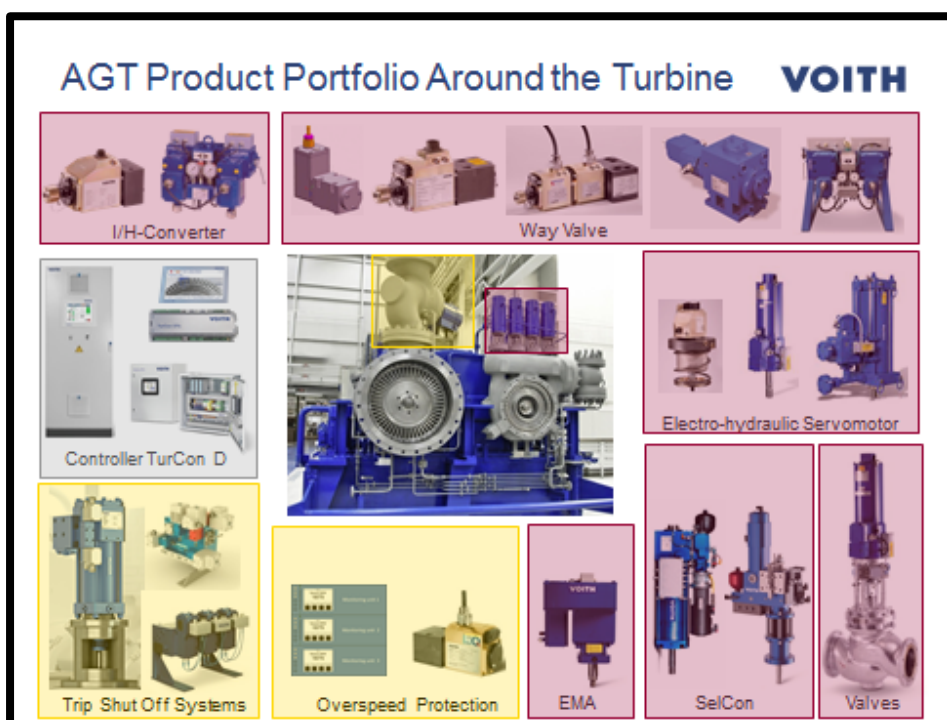


Exhibit 2

These components are primarily found on steam and gas turbines which can be found in a number of markets: Oil and Gas Industry, Paper Industry, Power Industry, Food Industry, Iron and Steel Industry, (Petro-) Chemical Industry, Sugar Industry, and Processing Industry. Before the emergence of DS, Voith Turbo (the original owner of the AGT portfolio) had a former business model that was focused on selling products in the AGT portfolio directly to Original Equipment Manufacturers (OEMs). Certain OEMs would purchase Voith's products, then, attach them to a larger machine they would create and sell to an end user (Exhibit 3, Voith Intranet). Another depiction of this process is starting with an establishment that produces paper, also known as a paper mill. There are many large machines involved in the process of converting trees into copy paper. Within one of the sections of this paper mill is a steam turbine, which is used to generate power. Voith does not produce the steam turbine itself, but the electronic driving systems (EDS, former name of the AGT portfolio) that assist its functionality.



Exhibit 3

Prior to 2015, the primary revenue stream from Voith came from the sales of its products to OEMs. In this new era of business, Voith has modified its competitive advantage to becoming a solutions provider. Difficulty in this transition comes from the past success of Voith sales operations. Rather than strictly selling to OEMs, Voith would also like to provide products and services to end-users. An example of an end-user is a paper mill, the final location that the Voith products must travel. Normally, the OEM would be the intermediary between Voith and the end-user with no transparency expressed to Voith in terms of where or who is receiving the products. If the OEM were to release the end user information to Voith, they would be significantly reducing their own business opportunities. The late initiation of this new strategy by Voith has created a scenario of looking for a needle in a multitude of haystacks. There are hundreds of paper mills scattered across EMEA that may or may not have Voith AGT products.

Voith uses the Sales force tool for its Customer Relationship Management (CRM) system. This tool allows Voith to manage customer data efficiently and without being hindered by one location such as a Rolodex, file cabinet, or other 20th century developments. When fully linked, the CRM system allows managers and sales representatives to see not only relevant contact information, but also they will see relevant transactions of customers and with whom from the Voith Company. It is equally important that this is a centralized database so that customer information can be shared across Voith divisions. Currently, each division at Voith has its own Salesforce program, and these division accounts are not fully centralized. Digital Solutions has also led the charge in implementing a centralized SAP Enterprise Resource Planning (ERP) system. The ERP system is intended to organize and store data that includes and extends beyond a CRM system. ERP systems act as a centralized hub to CRM, Finance, Ordering, miscellaneous Excel sheets, and other forms of data that can be found in a large enterprise (Exhibit 4, IIBM).



Exhibit 4

Converting a company with 19,000 employees across 4 different divisions into one centralized ERP system for the first time is a very challenging task. Voith Hydro alone has roughly 16 different ERP systems within their division that contains over 20,000 data entries. Voith Paper has around 3,000 different data entries and Turbo, 10,000. These data entries contain information on Voith assets that are purchased, sold, and in use. Relative to entries pertaining to hardware and/or software, Voith employees are trying to funnel every bit of data collected and recorded into one ERP system. Aside from the substantial amount of entries, the legibility poses another challenge. These entries of hardware, software, products, and services originated from users following their own method of organizing. That method is not always compatible with the method used to transfer the data to the ERP system, or even in a language that is understandable by the user who is trying to make the transfer occur. Specific examples would include receiving a data sheet with hundreds of entries from one of the divisions without a unit of measure for the bulk of the quantitative data. Although the user

and owner of this data set may understand clearly what the data means, it will look like a spreadsheet of numbers to anyone else who reads it without intuitively understanding it. Essentially, the idea is similar to trying to transfer classroom notes from a colleague's notebook to another, but the colleague has terrible handwriting and is not present to decipher it. In addition to this data-entering challenge, the CRM system has yet to be fully set in the ERP system. This traffic jam of information system operations obstructs the transference of new data that Voith Digital Solutions Sales Representatives (DS Sales Reps) receive as they are on the continuous hunt for sales opportunities from new and existing customers.

Review of Literature

From scientific studies, there are many correlations between organizational structures and families (Shtub, 2010). In the business world, organizational structures are defined by logical relation established by someone in charge or a ruling board (Shtub, 2010). Rather than mimicking the title of a family tree, the organizational structure refers to this display as a hierarchical chart. An organization can be defined as a collection of people (serving any collective purpose). The geometrical combination that these people are aligned can define the structure. Together, these terms unite the practice of structure design. Creating a structure that produces the desired outcome, given both an abundance of internal and external variables, is no easy matter. Different organizations have different goals, different environments, and different resources. There are many organizations that have a goal of increasing profits, whereas other organizations may strive for votes (politicians), knowledge (students), or championships (athletes). The two key factors of the organizational structure that affect the outcome of these goals are: performance and environment. Performance is key in this equation because the structure of the organization has an internal relation on it, while it has an external relationship with the environment. In the Olympic 100m sprint, runners are not

only trying to be the fastest runner in their heat, but they are also trying to break the current world record. To some runners, the race cannot be completely successful unless they come in first place and set a world record. Without achieving both of these challenges, the performance cannot be deemed successful (in this race). The same methodology can be applied to organizational structure. The *internal* components have just as much influence on the performance of the organization as the *external* environment in which it is involved (International, 2012).

Many theories have concluded, however, that although there are multiple variations of organizations with different structures, different goals, resources, and so on, that does not negate the idea that all of these factors can follow the same logical template (Morgan, 2015). The logical template stresses the matter that no organizational structure is designed to fail. There are instances of engineers intentionally building a poorly constructed bridge, but usually only to serve a greater purpose. This is not to say that there are not poor organizational structures that are still being implemented. Unfortunately, not everyone has the resources or know-how on structure design. Limited resources and knowledge do not prove an intended failure in design (Devaney, 2017). The logical template, no matter the application, follows the theory that success is more plausible after understanding the relationships between: organization structures and performances, different structure performances and different environments, and organization structures and their total costs. Both the structure and the people who make up the organization cost money. Logic tells us that if performance is the same and all other factors are set equal, the deciding factor is then usually the cost.

When designing a structure, designers start with a template that does not always use specific units of measure to describe the equation. In the car manufacturing industry, this model suggests that the importance of the number of airbags, amount of horsepower, or

number of heated seats are not credible for a logical template because of the detail of the units of measure. By replacing the number of airbags with “safety”, amount of horsepower with “speed”, and the number of heated seats with “comfort”, this model can be applicable to a wider range of organizations. Rather than the unit of measure, they use the relationship that the factor has to the performance of the structure.

It is important to note that there is no “one size fits all” template. The variation between organizations is much too vast to have one solution. Second, the world, on a grand scale, is changing often enough for a structure that may work today, may be harmful for the same organization in the future. Numerous external global factors both expected and unforeseeable have contributed to the necessary adjustment of firms and their organizational structures. More times than not, firms are looking toward outbound factors like their products/services or their competitors, rather than considering adjusting the very structure on which their organization exists (Kirsner, 2016). Or, they may understand the changing markets and their strategy to adapt consists of incorporating new divisions while retaining their existing organizational structure. Again, there is no one-size-fits-all template that can be applied for guaranteed success, but sometimes it is more beneficial to renovate the building rather than continuously constructing add-ons to increase value. With that being said, there are numerous organizational structures that come in all shapes and sizes and that serve different purposes. All of the structures can be categorized into two different forms: Mechanistic and Organic (Morgan).

Mechanistic structures are commonly known as the traditional hierarchical centralized structure. They have a strict chain of command and normally have very formal processes and procedures. The terms “centralized” and “decentralized” determine the number of authorities with decision-making power (Morgan). In this structure it is clear who reports to whom in the

entire organization. Mechanistic structures can be easily identified by comparing the structure to a triangle (Exhibit 5).

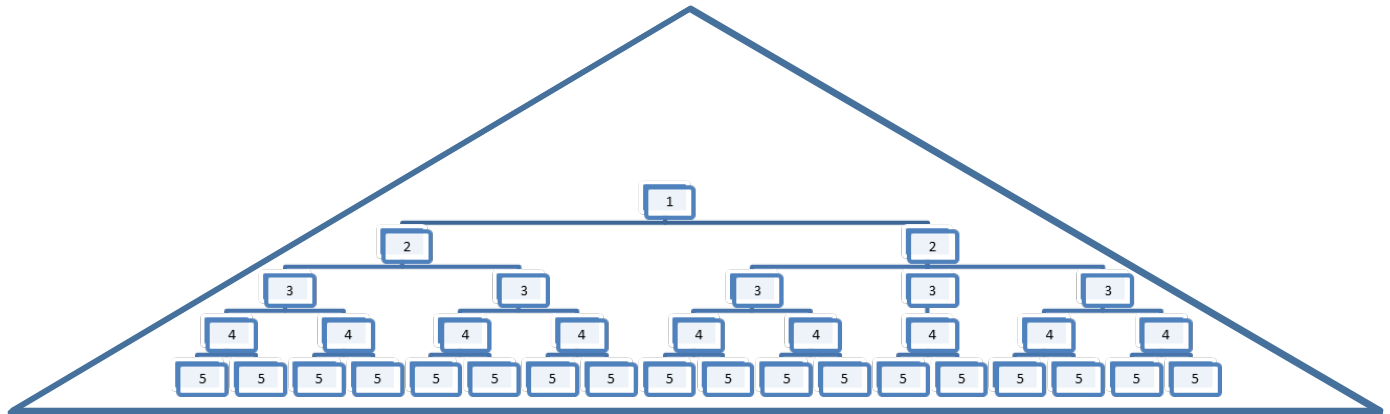


Exhibit 5

The base of the triangle is the largest because moving down the mechanistic structure, the span of control increases. This means that as levels get lower and lower in management, the corresponding manager is responsible for more and more employees. Beyond the realm of management is the link between employees who usually have specialized skills, who report to one manager. Within the form of a mechanistic structure lies a multitude of combinations that have one constant feature. Normally the position of Chief Executive Officer (CEO) or any top-level manager is the over-seeing eye in the organization. The next level is subject to whatever the type of mechanistic structure the companies deem most suitable (Exhibit 6) (Morgan).

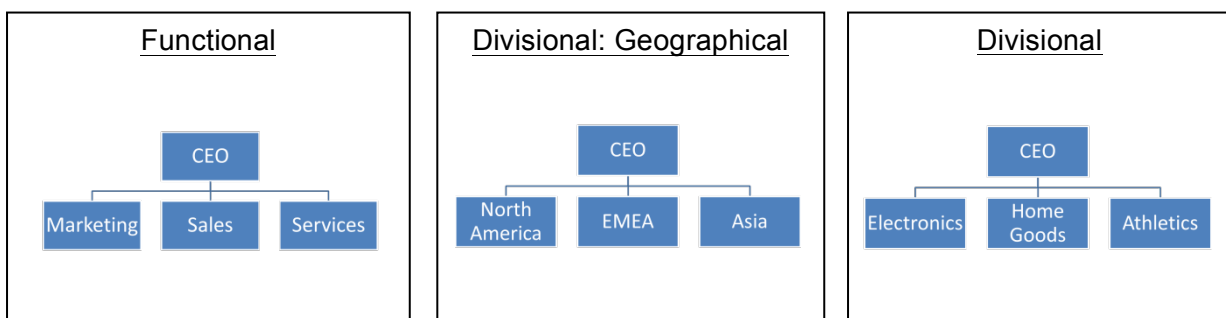


Exhibit 6

The list of possibilities for organizational structures is as follows:

- Functional
- Divisional
- Divisional: Market-Based
- Divisional: Geographical
- Process-Based
- Matrix

As with all structures, there are upsides and downsides. One of the key problems with the mechanistic structure is its self-hindrance to innovation or evolution. The strict processes and procedures that managers and employees follow do not promote cross-divisional assistance or invite growth outside of the employees' specialized field. This issue extends beyond the technical performance of the company and taps in to the moral of the employees. Whether or not the employees are new or veterans, the feeling of seeing the top of the hill but being confined to their specific role in the organization can be related to the condemnation of Sisyphus in Greek Mythology, who is known for eternally rolling a boulder up a hill, only to watch it roll down again. Whether or not the mechanistic structure is organized by functions or any of the divisional options, the structure contributes to the isolation of that employee to that specific field.

There are positives, however. With globalization consistently and drastically increasing, more and more cultures are integrating. Hofstede has showed us the different cultural dimensions found across the world and how those can affect the work place (Exhibit 7). The mechanistic structure's clear control and strict policies and procedures leave less

room for miscommunication or misunderstandings stemmed from cross-culture differences. Another benefit, with companies having to adapt to evolving markets, strategic decisions necessary for survival can disrupt organizational structures to the point where clarity on one's span of control can be clouded (Inc.com). This structure ensures clear authority no matter what internal or external forces may occur.

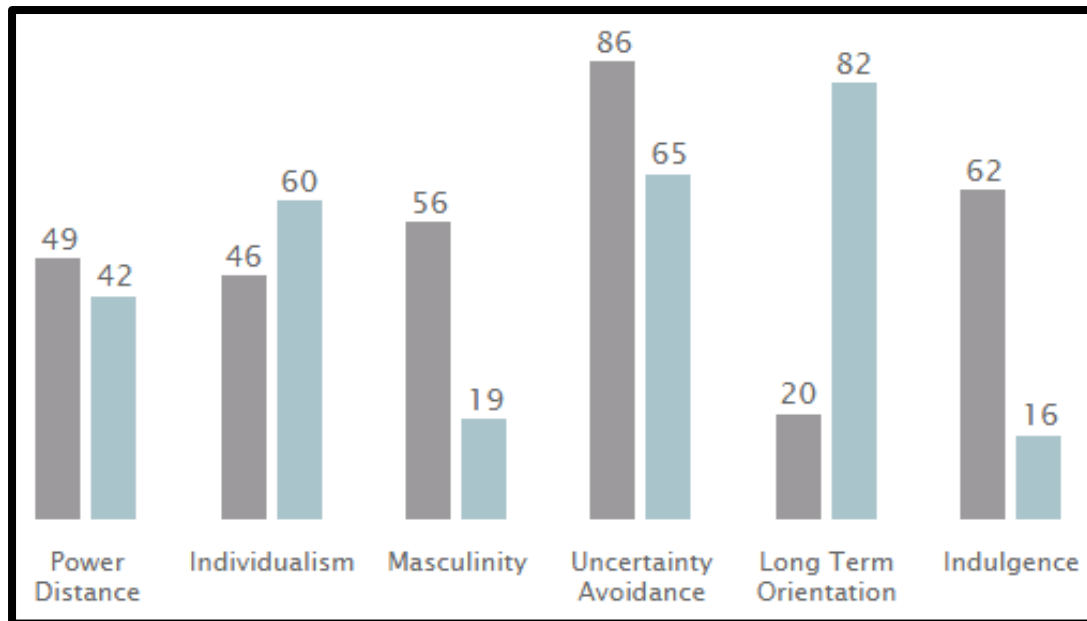


Exhibit 7

Organic structures are also known as flat or decentralized. “Flat” comes from the difference in shape of the structure compared to the hierarchical triangle. That triangle has transformed more into a landscape rectangle. Decentralization can also be expressed as many shapes however, as long as the focus remains that decision-making is more dispersed between being formal and informal, the structure is flexible, and communications have more channels than only vertical. The level of specialization of the employees is not as dire here because of the mobility of knowledge around the organization.

The trade-offs in the organic structure are more defined and more difficult in determining which feature is more valuable. Organic structures do not require oversight like the mechanistic structure (Morgan). This contributes to complexity on forming this type of

structure for an organization because of the level of trust needed and risk that is allocated with it. The payoff for this tradeoff, however, adds value to the adaptability of the organization to both internal and external forces. Additionally, empowering employees with this level of responsibility and trust promotes creativity and innovation that leads to positive changes in a company. The potential downside of this employee empowerment is the lack of directional control a mechanistic structure provides. The employee's creativity can stray away from a collective goal, which may ensue in inconsistency with the company's performance.

Mechanistic versus organic structures can be compared to stability versus adaptability in an architectural sense. We have seen the devastation natural disasters (hurricanes, earthquakes, tornadoes, etc.) can bring to buildings of all shapes and sizes. Sometimes we are left with only the biggest and strongest buildings after a storm. Other times it is not the largest or sturdiest building, but the lighter and smaller building that has flexibility and adaptability engineered within it. Another interesting perspective is the visual representation of the difference between mechanistic and organic structures. On a two-dimensional display, the mechanistic structure has a clear vertical relationship to the centralized authority (Morgan). The same could be said for an organic structure if it were displayed as a cone or cylinder on a three-dimensional display. Illustrating the difference in relationship between employees and top-level managers in a centralized structure rather than a decentralized structure commonly implies a decrease in hierarchical distance (Exhibit 8).

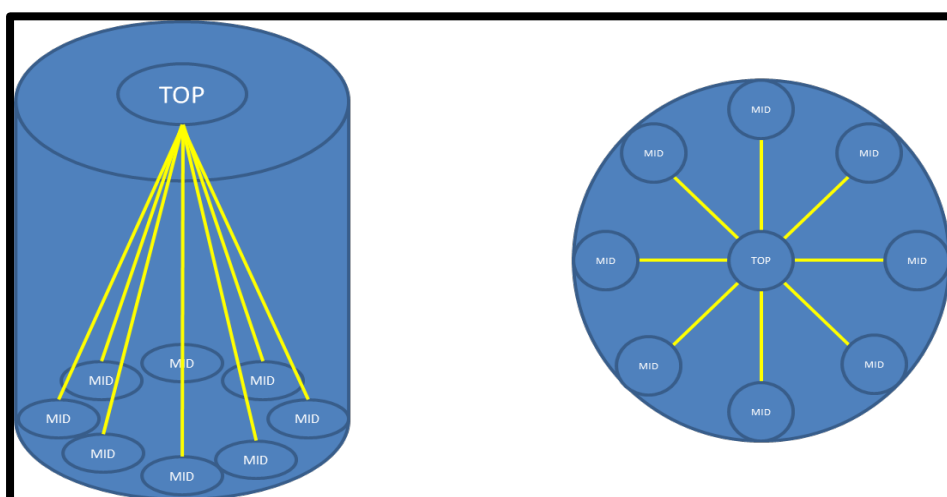


Exhibit 8

Another interesting perspective is that there has yet to be a standard for an organization to be centralized or decentralized (Baligh, 2006). Just as the American government is decentralized with the judicial, legislative, and executive branches sharing legal power, some companies, although they may have a CEO, rely on their executive board for their high-level decision-making. Although it may be multiple persons, if one body is the authoritative power, such as a board, is it truly decentralized?

Application of Research to Voith Situation

Applying these theories to the situation of Voith helps to explain the organizational disturbances found with the emergence of Digital Solutions. Even before DS was added to the Voith family in 2016, the company's structure easily conveyed a mechanistic, hierarchical, centralized structure. Voith Hydro and Turbo were byproducts of the success of Voith divisions, thus being created as an attack to the market in order to meet demand. The invitation by the market also allowed the proper process and procedures normally found in a hierarchical structure to ensure a smooth and proper transition into the company. The difference between the Digital Solutions division and the other divisions is that the external environment enticed Voith to create DS as a defensive reaction to the market. It was the first division created by Voith that seemed to resolve a threat as opposed to capitalizing on an opportunity.

Roland Berger 2013 explains not only the recommendation, but also the mandatory implementation of portfolio extensions to service offerings, in the engineered products industry. Their studies explain the transition to services in order to increase sales and profits, stems from globalization of competitors and global demand from customers.

“Our survey of 30 companies in the machinery and production systems industry in Germany, Austria and Switzerland revealed a clear correlation between service revenue and EBIT margins at a company level. Firms where the services accounted for more than 30% of revenues enjoyed particularly high EBIT margins of well over 10%. This was true for both big and small companies. Yet many companies still fall below the magic 30% figure.”

(Service Study Roland Berger, 2013).

The external changes were so abrupt that it caused a company with a traditional centralized hierarchy to adapt, which is not one of the beneficial features of this type of structure. Further elaboration on just how centralized this company is can be shown through a legal sense. Voith GmbH is a single company. Each of the divisions: Voith Hydro, Voith Turbo, and Voith Digital Solutions are also independent companies that are owned by Voith GmbH just as a multitude of other 50+ companies Voith GmbH has purchased. Each Voith division, as well as the mother company, all has their own CEO. Each CEO in the Voith family is on the Management Board for Voith GmbH. This means that ultimately, the CEOs have the decision-making power not only within their division from functional roles, but it also extends across the entire portfolio of Voith GmbH.

Questions/Discussion

1. You have a manager who has been working for 30 years in Voith Paper and has exclusive knowledge and relationships with customers and the market. The manager is planning to retire in the next 2 years. Voith Digital Solutions is in need of this manager's expertise and experience as well as someone with strong knowledge of SAP ERP systems and extensive knowledge in the Industry 4.0 trend. What do you do? (**Business Management, Human Resources, Change Management**)

a. Move that manager to lead a team of DS employees who have a strong understanding of the Industry 4.0 trend and ERP systems (for their last 2 years).

b. Look internally/externally for a manager with solidified SAP and ERP knowledge who has strong potential to reach the experience and expertise of the manager who is to retire.

2. You are now tasked with creating a model that relays the organizational structure (or chart) effectively and smoothly to every employee at Voith. Many employees across the four different divisions have outdated and inaccurate organizational charts so the command hierarchy is unclear. To make matters more difficult, dozens of transfers and position changes are happening each month because of the growth of the Digital Solutions division. How can you make sure everyone is on the same page with up to date information? (**Human Resources, Industry 4.0, IoT, Information Systems**)

a. Find a digital organizational chart program that is compatible with the ERP system. Allow employees to request role changes that pass through HR and their supervisor before being changed in the system. Though organizational structure is normally not found in enterprise resource planning, it would be beneficial of having a centralized system.

b. Create organizational charts for each division or portfolio Voith offers. This does not require significant resources or effort and can ensure ease of locating relevant parties throughout the company.

3. OEMs will not disclose to you the location nor contact information of end users they sell Voith DS AGT products to. At Voith DS, you are responsible for increasing service-sales of existing AGT products across EMEA. How do you find potential end users with AGT products? (**Sales, Strategy, Marketing**)

a. Voith knows the products and the applications for the products. Therefore, with this information Voith can backtrack to find where their products are. The AGT portfolio operates primarily around steam turbines. A simple Google search or engineer can share the industrial uses and applications for steam turbines. This knowledge has told us (Voith) that there are steam turbines in paper mills, oil and gas refineries, hydro plants, processing plants, and so on. After we have found where steam turbines are found, it is then a matter of tedious, traditional sales and marketing teamwork. Finding contact numbers for operators at these plants can be done by obtaining the general number to the facility from the Internet, but would not be recommended and usually has a low rate of success. For the highest rates of success, having a direct contact to an operator or machine engineer at the plant would increase the chances of closing a potential sale. Although Voith does not have direct contacts to every facility with a steam turbine, Voith chose to start with locations from which Voith has already had business. AGT is a small component of Voith's large portfolio. We reached out to other portfolios, teams, and departments from Voith that may have had former business with a particular facility. This process not only provided the AGT team with contact numbers to relevant clients, but also acted as a reference for credibility. Additionally, much of this contact information has been uploaded to the company-wide CRM system. This made the

locating potential clients much easier than directly contacting other Voith teams or departments. This correlates to increasing service-sales of existing AGT products across EMEA because now that we know where AGT products are installed, we can then offer upgrades, retrofitting, or other service offerings that are applicable. (**Actual process**)

b. Create a call-to-action plan that will invite end-users that have Voith products to contact Voith. These can include promotions, special upgrade or exchange deals, servicing, evaluation, or other methods that will drive their incentive to reach out.

4. When a large company opens a new department (such as Digital Solutions), it tries to move with the comfort of a small start-up business. What are some of the advantages and disadvantages of having a company the size of Voith open a brand new division in an unfamiliar area such as DS? (**Business Management, Strategy, Sales, Business Model Innovation**)

a. Advantages: Abundance of resources for new venture; credibility (also potential disadvantage); larger customer/client base to receive feedback from.

b. Disadvantages: Past political issues; innovation is hindered by logistical demand (approvals, meetings, verifications, etc.); slow cycle time for developing ideas; inflexible business model and ability to make quick changes to concepts; marketing and/or sales feel authority over customer relationships rather than having customer drive innovation and value; easily overlooking 'small' projects due to revenue comparison.

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