

Polarity Venture can production work costs by up to 10%.



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Summary and findings

Polarity Venture can cut production costs by up to 10%, through interdepartmental collaborations.

Consumers were promised a new investment package by the end of April 2021, but they did not receive it until the end of June, which is an additional two months, and even then, consumers experienced errors in processing

packages, making it difficult to understand what the packages were and stood for.

The Analytic term formulated questions to aid in the development of data-driven steps HR can use to improve interdepartmental collaboration; ineffective collaboration was identified as the root cause of the problem. Which departments are the most active/least active? According to our findings, sales, operations, and administration were the most active, while IT, engineering, and marketing were the least active. I went on to ask, "Which employees have the most connections?" Employee 605 from the Sales department.

The goal of this analysis is to develop data-driven steps that HR can use, which leads to the question, "Identify the most influential departments and employees?" Our most influential departments are also the most active.

Recommendations

How to encourage collaboration and avoid its pitfalls.

The goal is to come up with measures HR can use to improve inter-departmental collaborations without straining employees. Remember even in our collaboration people don't like to be micromanaged. Avoid the temptation to micromanage.

1. Collaborative software

Use a virtual collaboration workspace that accesses internal messaging software, and virtual all-hands meetings tools for monthly meetings. Decisions about what the company chooses to prioritize and focus on should be documented and shared with the company. This needs to be done so everyone can see it regardless of where they are. With tools like Google Drive, DropBox, Zoom, Slack, skype, etc. We are keeping everyone in the loop. These will reduce the time spent setting up physical meetings (to discuss changes in a project) and the time it takes for information (either on projects in progress or general information) to be passed amongst departments because it can be passed virtually and employees will receive the message at the same time and act accordingly.

2. Use project and task management software

Project and task management software can save teams loads of time and make tracking, delegating, and staying updated on things much smoother. This is especially important for departmental teams, and employees across countries that need to collaborate and delegate work. Some examples of task and project management software are Asana, Monday, Trello, Daylite, and Basecamp. This reduces the time spent on project formulation and execution by more than half, allowing available time to be invested in more valuable work.

3. Get continuous employee feedback

Using the “lean approach”, the necessary steps and measures to be prescribed from this analysis will be deployed or implemented, with feedback employees used to improve the measures for maximum effect. Instead of waiting for the steps to be perfected before collecting feedback from customers, measures can be implemented at any stage to collect actionable feedback from employees. Improving departmental collaborations must be a continuous process for the company's success; this approach will ensure departmental collaborations' success.

4. Set Goals That Can Only Be Hit Working Together

Sales and marketing teams often have goals that are completely separate. If you're trying to align them, make it a goal for both departments to close leads at the same rate. That forces marketing to improve the quality of their leads and sales to work hard on closing them.

5. Make it contextual

Give every department a holistic view of the company and let them partake in a common goal. Encourage sharing of information around the shared objectives by having interdepartmental meetings.

6. Form cross-departmental teams

Pulling a cross-functional team together to tackle a project is a great way to get departments to interact. When individuals from different departments work together towards a common goal, it can go a long way in fostering

communication between the groups, ensuring that they use both physical and virtual options for meeting organization, as well as instant messaging software for quick communication

7. Good old-fashioned relationship building

Using trust to foster relationships among company employees, Collaboration may result in complexity in decision-making, loss of autonomy, and a lack of consistency and clarity on roles and responsibilities. With an adequate understanding of different cultures and careful planning, problems such as resistance to change, cultural mismatch between organizations, and so on can be avoided. A peaceful and comfortable working environment, resulting in a boost of productivity, revenue, profit, and better decisions.

Interdepartmental collaborations have risks and drawbacks such as conflicting working styles, a loss of flexibility in working practices, disengaged individuals and teams who feel they don't have a voice, and micromanagement, among others. Such risks will be avoided by adhering to the prescribed measures for improvement (based on department evaluation, employee network connections, and envisioning where we want to be).

Introduction

Departmental collaboration, cross-departmental collaboration (or interdepartmental collaboration), is when your employees work together across team lines to achieve a common company goal.

Polarity Ventures developed a brand-new product line to meet specific customer needs. However, as the products were released, it became clear that the product development and marketing teams had not worked closely enough with the IT and sales teams responsible for supporting these products. This was 6 months after production began. These teams were aware of the overall product development strategy, but they were excluded from specific planning and rollout decisions, leaving them scrambling to catch up by the time the products were released. As a result, customers experienced processing delays and errors, sales representatives were unprepared for inquiries, and the final end-to-end cost of the new products was significantly higher than anticipated. If this is not addressed, it will eventually lead to more losses. According to the Human Capital Institute, employee disengagement

costs the US economy up to 350 billion dollars annually in lost productivity, accidents, theft, and turnover.

Polarity Ventures is a multinational investment firm with operations in five countries: the United States, France, Germany, the United Kingdom, and Brazil. The head of HR has tasked us with a better understanding of interdepartmental dynamics and investigating how the company shares information, with the ultimate goal of finding ways to improve collaboration throughout the organization.

It goes without saying that departmental cooperation is valuable in project management and business. Without this, how would we accomplish anything? Many organizations, however, lack the management skills and collaborative culture necessary to keep teams motivated and moving in the same direction.

We have carefully crafted a series of questions to assist us in meeting the objectives of this assignment. In analytics, asking the right questions is critical because it allows us to produce the desired results.

- ★ Which departments are the most/least active?
- ★ Which employee has the most connections?
- ★ Identify the most influential departments and employees?
- ★ Using the network analysis, in which departments would you recommend the HR team focus to boost collaboration?

In order to improve collaboration between employees and departments, Polarity Ventures can use the results of these questions to devise methods and action plans.

Analysis Plan

For this analysis, the R programming language will be used, and network analysis will be used to examine relationships among entities (departments and employees), with concepts such as eigen centrality used to understand entity relationships. Eigen centrality is a measure of the influence of an entity in a network. Using the ideology of the lean approach to create measures that will be used to improve collaborations. The lean approach is a method of optimizing your organization's people, resources, effort, and energy toward creating value for the customer. It is founded on two guiding principles: continuous improvement and human dignity.

Data Description and Cleaning

The company has six months of information on inter-employee communication. For privacy reasons, only sender, receiver, and message length information are available (source). Our data is a two CSV files, Messages, and Employees;

Messages have information on the sender, receiver, and time.

- ❖ "sender" - represents the employee id of the employee sending the message.
- ❖ "receiver" - represents the employee id of the employee receiving the message.
- ❖ "timestamp" - the date of the message.
- ❖ "message_length" - the length in words of the message.

Employees have information on each employee;

- ❖ "id" - represents the employee id of the employee.
- ❖ "department" - is the department within the company.
- ❖ "location" - is the country where the employee lives.
- ❖ "age" - is the age of the employee.

Data were correctly and accurately recorded and housed; further cleaning of the data was not required.

Analysis

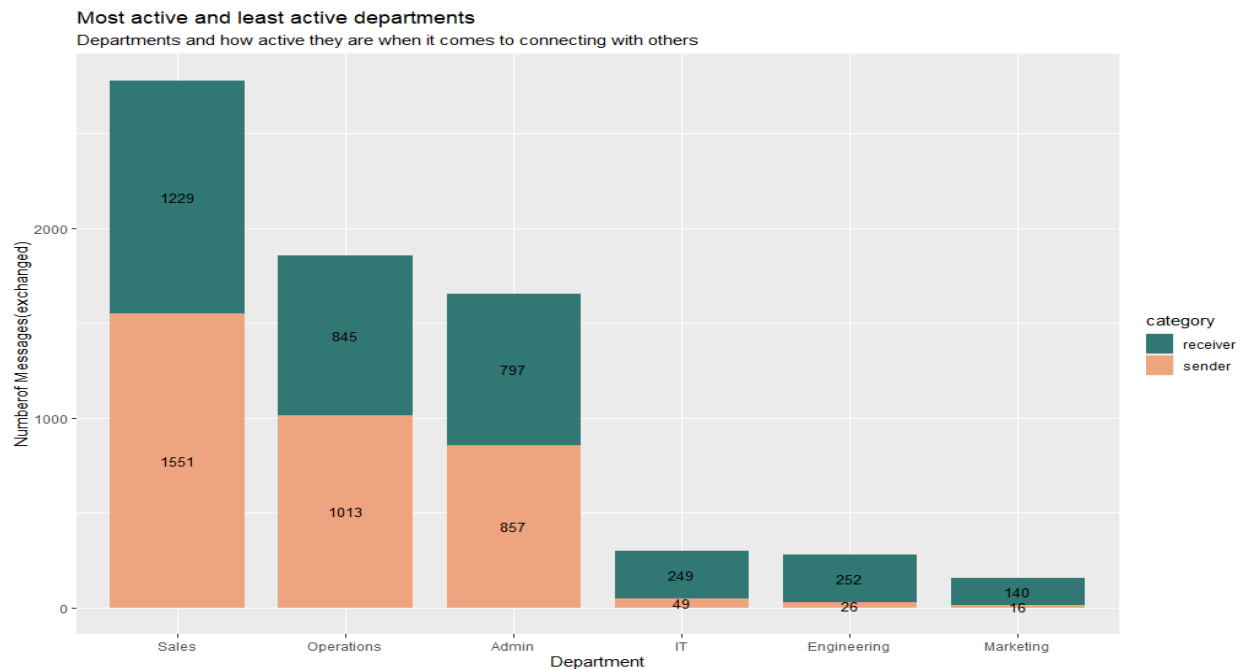
In envisioning where we want Polarity Venture to be, we need a better understanding of where collaboration between departments and employees of Polarity Venture is presently and measures can be applied accordingly.

Which departments are the most/least active?

The corporate culture, expenses, leadership, and productivity can all be impacted by poor workplace communication. Employees who work in environments with poor communication may feel disengaged and are more likely to deliver subpar work. People must cooperate in order for projects and businesses to succeed; poor communication makes people work harder while accomplishing less, increasing the cost of doing business.

We will access the most and least active employees from the company over the last six months; from this analysis, we will be able to identify departments

with strong connections to others and departments with weaker connections that need to be strengthened. The project problem has been traced back to the product development and marketing teams failing to share (collaborate enough) adequate information with the IT department and Sales teams. Now we'll delve deeper to see if there are any other departments that have suffered the same fate.



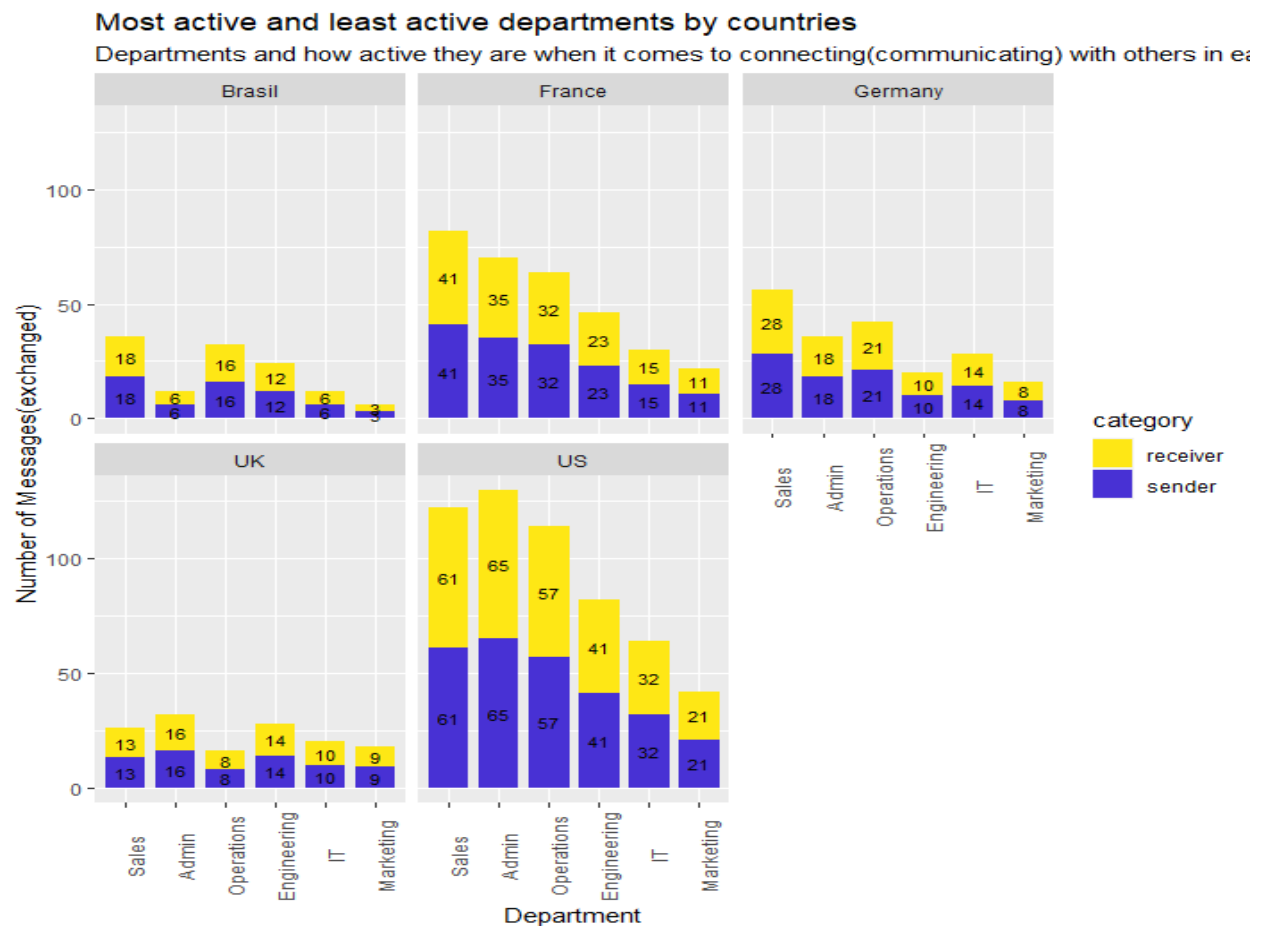
Sales, operations, and administration have been the most active in dispatching and receiving information and messages to and among departments over the last six months. Similarly, over the last six months, IT, Engineering, and Marketing sent or received fewer messages with other departments.

Departments must be in constant communication and collaboration so that the combined manpower of all departments can contribute to the company's growth. Marketing and sales must collaborate to create and formulate irresistible marketing and sales pitches that connect to drive traffic into the business. Operations, Information Technology, and Engineering

Which departments are the most/least active according to countries?

Polarity Venture is a multinational company with a presence in five countries, US, France, Germany, UK, and Brazil. We have seen the general activeness of the company as a whole in terms of departmental communications and connections amongst themselves. Here we are going to probe into the

company by countries, to have an understanding of each country state in term of connectivity.



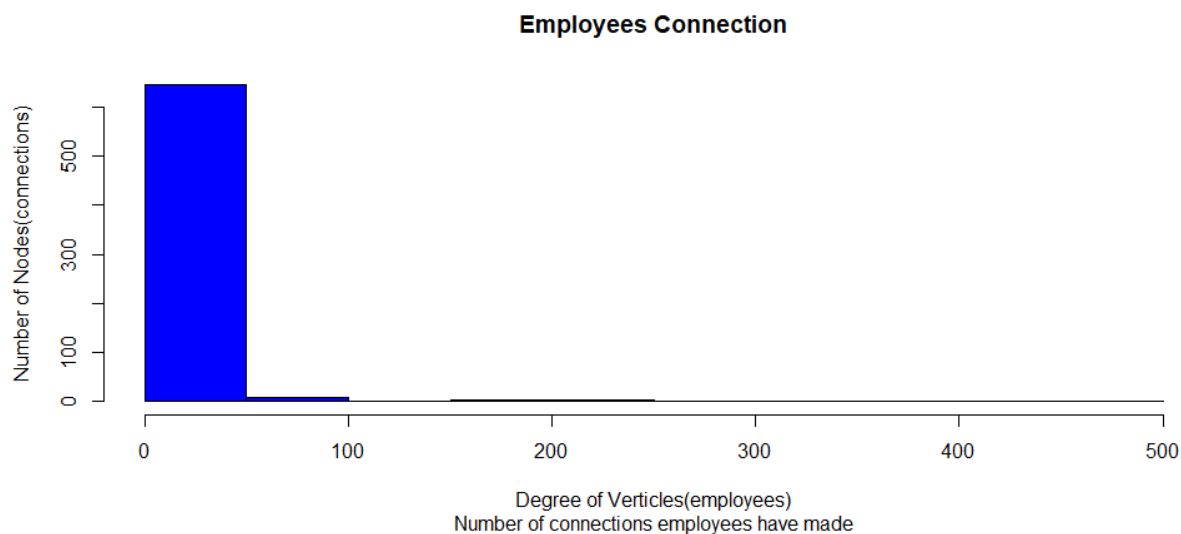
From a closer examination of departmental communication in each country, we can see that the three departments, while functioning as a whole, are not functioning as individuals. The least communication occurs between departments in Brazil and the UK when compared to other countries. This may be due to the size of the companies in these particular countries, but without more information, we will move on.

Delays occurred as a result of departments failing to communicate effectively; IT, Engineering, and Marketing were identified as the least active departments in terms of collaboration. Product development and marketing were not communicating well with the IT and sales teams, two of the least active departments. Polarity Ventures will benefit if departments collaborate effectively in projects, with departments supporting each other in weak ways for 100% effectiveness.

Which employee has the most connections?

With better-engaged employees, it becomes easy for an organization to achieve its full potential and less time to complete projects at less cost. Polarity Ventures will benefit tremendously from effective interdepartmental collaboration.

Using the connection that employees have already established, HR will only need to use this structure to build effective collaboration between departments. HR must identify the employee who has the most connections across departments so that HR can understand this employee connection and replicate it for other employees in order to build more active collaborations between colleagues and departments.

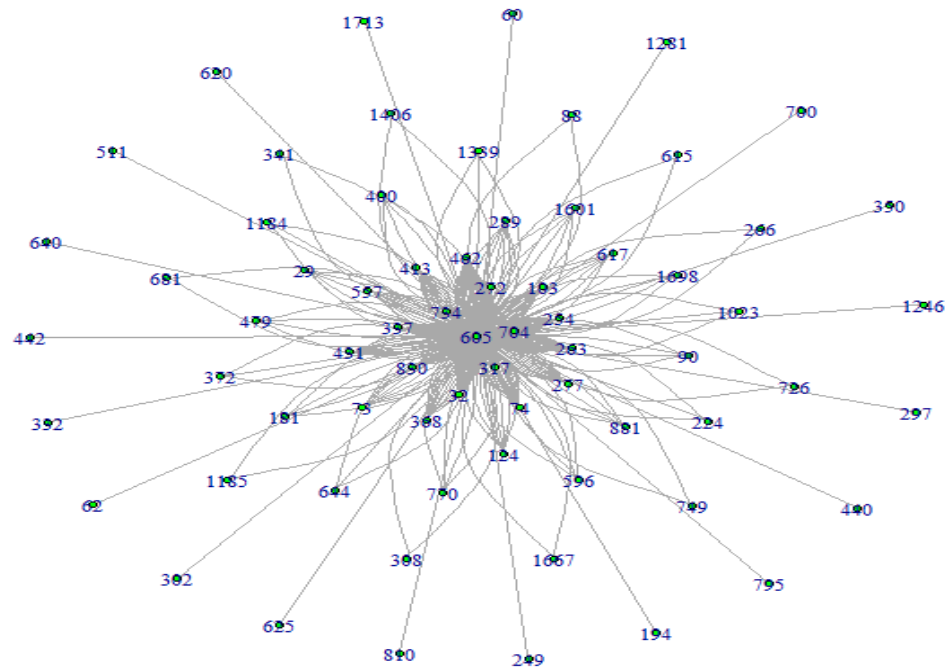


The histogram above simply depicts the distribution of connections made by Polarity Ventures employees among themselves; 0 to 100 Polarity Ventures employees have made more than 500 connections among themselves or have sent or received messages from other employees. This graph shows that only 100 employees out of 664 have exchanged messages with other colleagues in the last six months, indicating that a larger proportion of employees have little or no communication with one another.

We need the employees with the most connections across departments and countries to serve as the project's spearhead. We can easily replicate their

connection structure from these employees in order to improve collaboration by identifying employees with whom they are not connected and studying the pattern in their current connections.

The Connections Employee 605 Has



Employees 605 has been in communication with

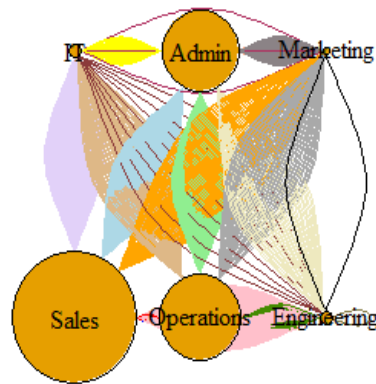
This is the connection structure of the employee with the most connections; we can see the employee (605) with the most connections, with connections to over 496 other employees, from the center of the network graph. This connection is determined by the number of messages exchanged. Messages have been exchanged more frequently as other employees get closer to the 605.

From this graph using the thickness of the lines we can see how frequently employee 605 exchanges messages with other colleagues.

Identify the most influential departments and employees?

To identify the crucial areas where improvements are required, HR, could examine the already established network relationships they have with other departments. By having the most influential departments lead the relationship-building with other departments, this information can also be used to strengthen bond between departments.

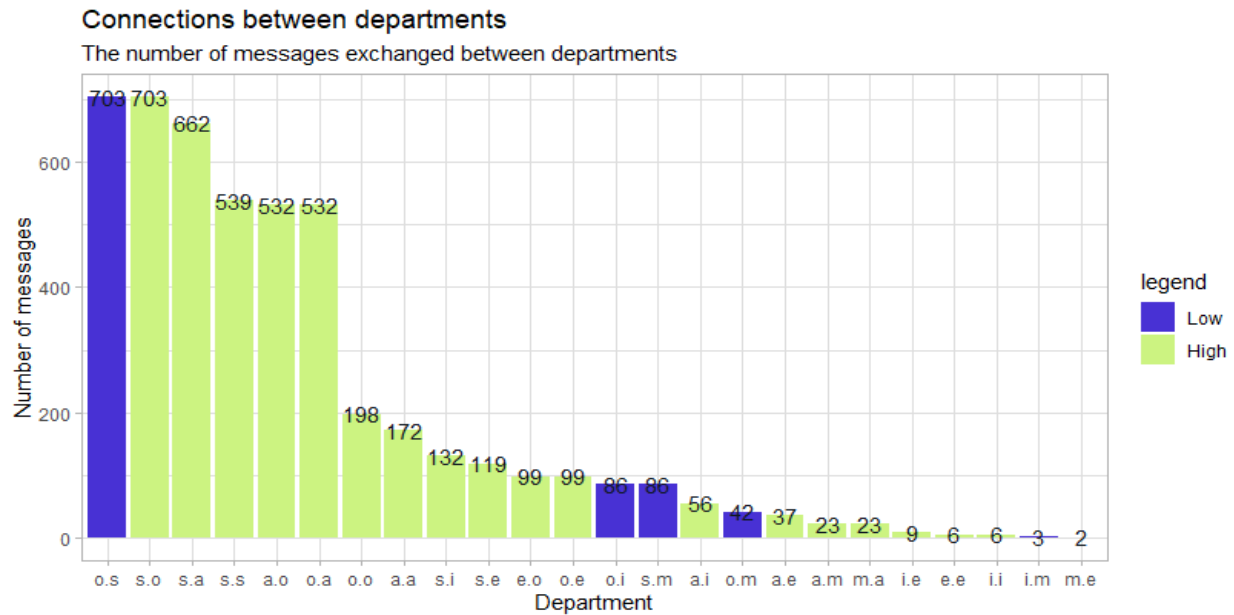
Influential Departments



How they are connected to other departments

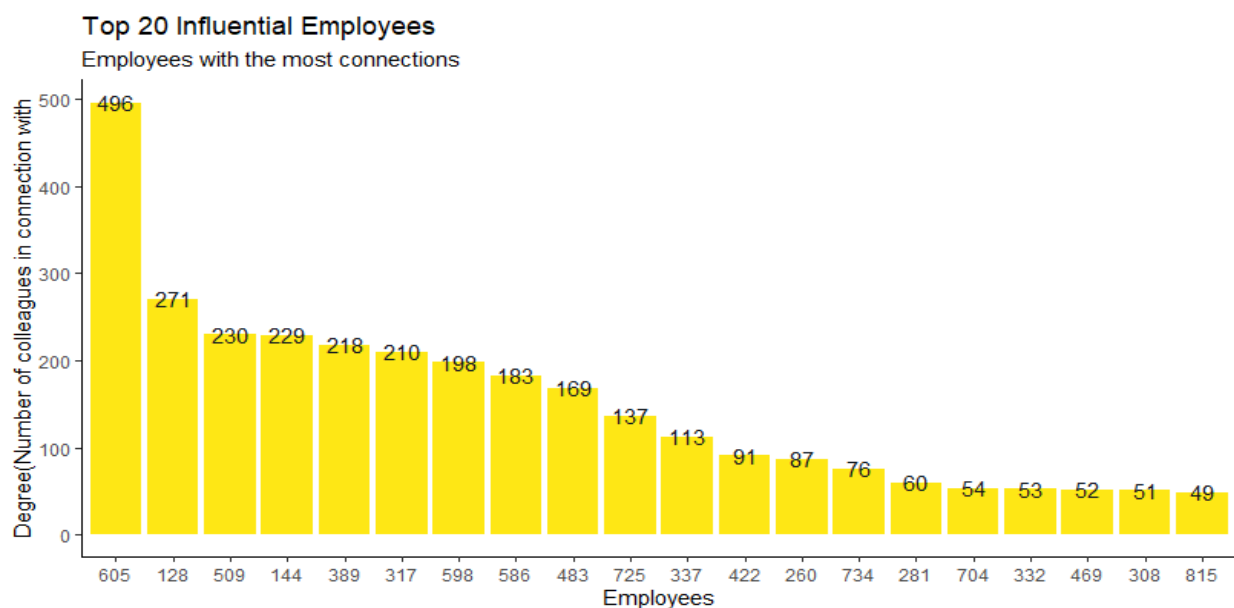
The size of each department's circle represents how connected they are to other departments; the larger the circle, the more connected (collaborating) they are, and the smaller the circle, the less connected they are. When we looked at which departments were the most active in terms of communication, we discovered that Sales, Administration, and Operations were the most active, while IT, Marketing, and Engineering were the least active. The same holds true here; the most active are still the most influential departments in our network connection.

Consumers experienced delays as a result of product development, marketing teams failing to communicate effectively with IT and sales teams during the product's development, in order to better understand the network already established among our departments and identify where improvements are needed. This data will also be used to determine our most influential departments. Operations to IT, Operations to Sales, Marketing to IT, Marketing to Sales, and Operations to Marketing will be represented in Electric blue, while the rest will be represented in Lime green.



With the exception of the sales and operations relationships, we can see other departments where our problem can be traced; their communications were poor, and the problems encountered during product deployment now make perfect sense. During the 6 month period of product production, Marketing only sent 42 messages to the Operations department and 3 messages to the IT department.

Most Influential Employee



Employees that have already established stronger networks than the rest, HR will employ the aid of these sects to foster interdepartmental collaboration through colleague's relationship building.

Polarity Ventures HR teams will need to explore the connections the top connected employees have and use that by improving on it and filling leaks in the network structure in order to build a stronger relationship bond among departments. Polarity Ventures stands to avoid issues such as disengaged and unaccountable workforce, which can lead to revenue losses, by improving relationships between departments and employees.

References

Statistical Analysis of Network Data with R by Eric D. Kolaczyk & Gabor csardi

<https://www.ntaskmanager.com/blog/ways-to-improve-collaboration-between-departments/>

<https://learn.g2.com/remote-work-communication>