

# **HR METRICS AND ANALYTICS FOR 50 FOODS (FOOD INDUSTRY)**

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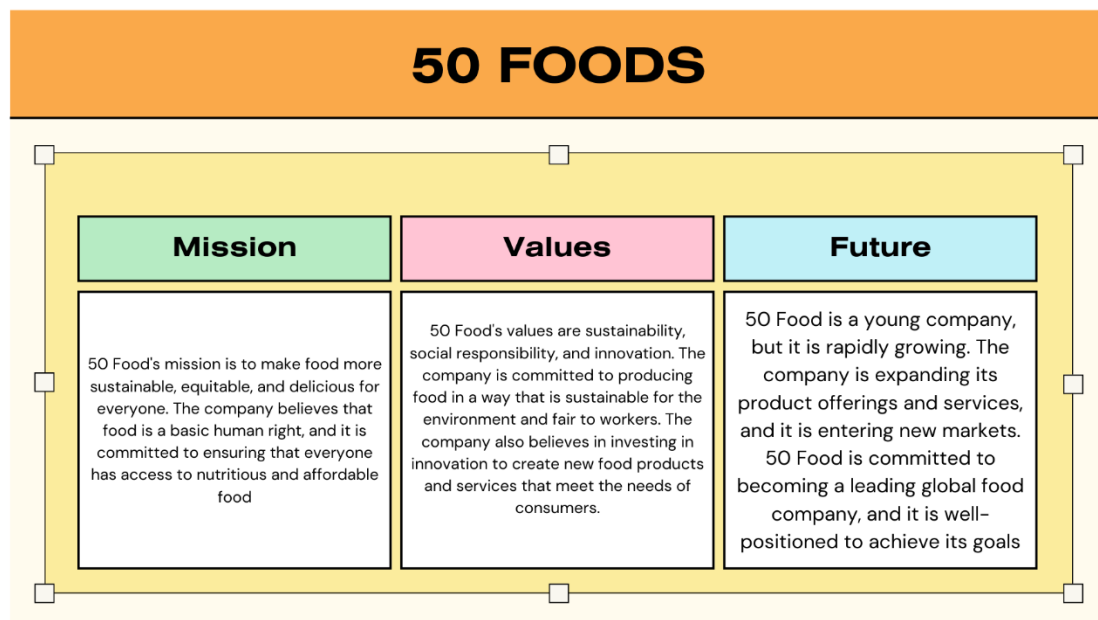
**October – 2023**

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## Introduction To the Company:

50 Food is a global food company that is committed to providing consumers with the safe, nutritious, and delicious food that they need and want. The company was founded in 2023 with the vision of creating a more sustainable and equitable food system. It offers a wide range of products, including fruits and vegetables, grains, meat and poultry, dairy, eggs, legumes, nuts and seeds, fats and oils, spices and herbs, and processed foods. The company sources its products from a global network of suppliers, and it is committed to working with suppliers who share its values of sustainability and social responsibility. 50 Food also offers a variety of services, including food delivery, meal planning, and cooking classes.



## Project Summary

### Project Objective

The objective of this project is to outline the findings based on problems and areas of focus in 50 foods and suggest needed HR improvements and initiatives to use to be carried by 50 foods to achieve its goals.

### Scope of Project:

- Findings and 50 foods strategy map based on given case study.
- High level guidelines to carry the following HR improvements and initiatives and suggested metrics to use:
  - Culture
  - Talent Management
  - Motivation of Talent
  - Retention of Employees
  - Recruitment
  - Performance Management
  - Learning and Development
  - Diversity
- Operational analytics
- Predictive analytics

## Findings and Strategic Map:

### 1. Culinary Innovation and Excellence

- 50 Foods will invest in culinary innovation, creating unique and unforgettable food experiences for our customers.
- Develop a dedicated R&D team to explore new flavors, ingredients, and cooking techniques.
- Regularly update the menu with seasonal and trendy dishes to cater to evolving customer preferences.

### 2. Food Safety and Quality Assurance

- Implement stringent food safety measures to ensure the highest standards of food quality and safety.
- Obtain relevant certifications (e.g., ISO 22000) to enhance our credibility in food safety.
- Conduct regular internal and third-party audits to maintain our commitment to food safety excellence.

### 3. Customer-Centric Approach

- Establish a Customer Feedback Portal for real-time interaction and feedback collection.
- Utilize data analytics to understand customer preferences and personalize offerings.
- Launch loyalty programs and promotions to reward our loyal customers.

### 4. Employee Engagement and Development

- Invest in employee training programs to enhance culinary skills, customer service, and teamwork.
- Implement a mentorship program to promote employee growth and development.
- Create a diverse and inclusive workplace to foster creativity and cultural understanding.

### 5. Talent Retention and Succession Planning

- Identify and nurture high-potential employees for future leadership roles.
- Develop a comprehensive succession plan to ensure a smooth transition in key positions.
- Conduct regular employee satisfaction surveys to address concerns and improve retention rates.

## 6. Brand Building and Marketing

- Develop a strong brand identity that reflects our commitment to culinary excellence and food safety.
- Launch targeted marketing campaigns across various channels to reach a wider audience.
- Collaborate with food influencers and experts to create buzz around our brand.

## 7. Organizational Culture

- Foster a culture of passion, creativity, and continuous improvement.
- Celebrate culinary achievements and employee milestones.
- Ensure alignment with our core values and mission across all levels of the organization.

50 Foods aims to differentiate itself in the food industry by delivering exceptional culinary experiences, maintaining the highest standards of food safety, and fostering a customer-centric and employee-engaged culture.

## Strategy Map:



## HR Objective With Key Quantifiable Measures

Certainly, here are HR objectives with key quantifiable measures tailored for "50 Foods," a fictional company in the food industry:

Certainly, you can align HR objectives with key quantifiable measures for each of the HR functions you mentioned: culture, competency management, cost and productivity, recruitment, training and development, performance management, and talent management. Here are objectives and quantifiable measures for each of these functions:

### 1. Culture:

Objective: Foster a positive and inclusive workplace culture.

Measures:

- Employee Satisfaction Score: Maintain an annual employee satisfaction score of at least 85%.

- Diversity and Inclusion Index: Increase the Diversity and HCRI Index by 10% over the next two years.

- Employee Engagement: Achieve a yearly employee engagement score of 80% or higher.

Objective	HR Measure	Target	Initiative
Create a positive and supportive work environment (feel valued and respected).	Employee satisfaction survey	90% of employees score the work environment as "good" or "excellent"	Conduct regular employee satisfaction surveys and focus groups to gather feedback on the work environment. Implement changes based on feedback.
Promote teamwork and collaboration among employees.	Number of employee-led projects	10% of all projects are led by employees	Encourage employees to come up with ideas for projects and provide them with the resources they need to complete them.
Foster a culture of innovation and creativity.	Number of new products or services launched	Launch 2 new products or services per year	Create a space for employees to share their ideas and collaborate on new projects. Provide training and resources to



			help employees develop their creativity.
Create a culture of safety and compliance.	Number of workplace accidents	Reduce workplace accidents by 10% per year	Implement safety procedures and training for all employees. Conduct regular safety audits.
Promote diversity and inclusion in the workplace.	Number of employees from underrepresented groups	Increase the representation of underrepresented groups in the workforce by 5% per year	Create a more inclusive workplace culture by providing unconscious bias training for all employees and celebrating diversity in the workplace.

## 2. Competency Management:

**Objective:** Ensure employees have the necessary skills and competencies.

**Measures:**

- **Competency Assessment:** Conduct regular competency assessments and ensure that employees meet at least 90% of required competencies.

- **Skills Gap Reduction:** Reduce skills gaps by 15% through targeted training and development programs.

Objective	Business Measure	HR Measure	Target	Initiative
Improve customer satisfaction	Customer satisfaction score	Net Promoter Score (NPS)	Increase HCRI by 85%	Implement a customer feedback program and train employees on how to respond to customer feedback.

Increase sales	Revenue growth	Sales per employee	Increase sales per employee by 10%	Provide sales training to employees and implement a sales incentive program.
Reduce employee turnover	Employee turnover rate	Annual employee turnover rate	Reduce employee turnover rate to 10% or less	Implement an employee engagement program and provide employees with opportunities for professional development.
Improve employee productivity	Productivity	Output per employee	Increase output per employee by 5%	Invest in new technology and train employees on how to use it effectively.
Strengthen employee morale	Employee morale	Employee satisfaction score	Increase employee satisfaction score by 5%	Implement employee recognition programs and create a positive work environment.

### 3. Cost and Productivity:

Objective: Optimize HR-related costs while enhancing productivity.

Measures:

- Cost per Hire: Reduce the cost per hire by 10% through streamlined recruitment processes.
- Productivity Metrics: Increase overall employee productivity by 8% through efficient resource allocation and performance improvements.

Objective	Business Measure	HR Measure	Target	Initiative
Increase revenue	Revenue growth	Employee engagement	Increase revenue by 10% year-over-year	Develop and implement a new sales strategy.
Reduce cost	Cost of goods sold (COGS) reduction	Employee productivity	Reduce COGS by 5% year-over-year	Invest in new equipment and training programs to

Objective	Business Measure	HR Measure	Target	Initiative
				improve employee productivity.
Compensation factor	Compensation satisfaction score	Employee compensation	Increase compensation satisfaction score to 80%	Conduct regular salary surveys and benchmark compensation rates against other companies in the industry.
Increase customer satisfaction	Net promoter score (NPS)	Customer satisfaction score	Increase NPS by 5 points year-over-year	Implement a customer feedback program and use the feedback to improve products and services.
Improve employee retention	Employee turnover rate	Employee satisfaction score	Reduce employee turnover rate by 2% year-over-year	Create a positive and supportive work environment and offer opportunities for professional development.

#### 4. Recruitment:

Objective: Attract and hire top talent efficiently.

Measures:

- Time-to-Fill: Decrease the time-to-fill for critical positions to an average of 40 days.

- Quality of Hire: Assess the quality of hires using performance evaluations and aim for a 90% satisfaction rate from hiring managers.

Strategic Theme	Objective	Business Measure	HR Measure	Target
Candidate Acquisition	Reduce time to fill	Average time to fill	30 days	Implement a new applicant tracking system
Candidate Acquisition	Increase candidate diversity	Percentage of hires from underrepresented groups	20%	Partner with diversity organizations to recruit candidates
Candidate Selection	Improve quality of hire	Percentage of new hires who meet or exceed performance expectations	90%	Develop a new screening and selection process
Candidate Experience	Increase offer acceptance rate	Percentage of candidates who accept job offers	80%	Send personalized offer letters and onboarding materials
Employee Retention	Reduce attrition rate	Percentage of employees who leave the company within one year	10%	Conduct regular employee surveys and implement retention programs

#### 5. Training and Development:

Objective: Enhance employee skills and knowledge.

Measures:

- Training Effectiveness: Measure the effectiveness of training programs with an average rating of at least 4 out of 5 from participants.

- ROI on Training: Achieve a minimum ROI of 200% for all training initiatives.

Strategic Theme	Objective	Business Measure	HR Measure	Target
Employee Engagement	Increase employee engagement	Employee engagement score	80%	Implement regular employee surveys and town hall meetings
Productivity	Increase employee productivity	Units produced per hour	5% increase year-over-year	Provide employees with access to training and development resources
Quality of Work	Improve the quality of work	Percentage of products that meet or exceed quality standards	95%	Implement a quality control process and provide employees

				with feedback on their work
Food Safety	Ensure food safety compliance	Percentage of audits that pass without any violations	100%	Provide employees with food safety training and implement regular food safety inspections
Retention	Reduce employee turnover	Percentage of employees who leave the company within one year	10%	Conduct exit interviews and implement retention programs

#### 6. Performance Management:

Objective: Ensure employees are aligned with company goals and perform at their best.

Objective	Business Measure	HR Measure	Target	Initiative
Increase customer satisfaction	Net Promoter Score (NPS)	Employee engagement	NPS of 75 or higher	Implement employee satisfaction surveys and action plans
Improve operational efficiency	Cost per unit produced	Employee productivity	Reduce cost per unit produced by 5%	Implement lean manufacturing and continuous improvement initiatives
Launch new products	Number of new products launched per year	Number of employees trained on new products	Launch at least 10 new products per year	Develop and implement training programs on new products for all relevant employees
Expand into new markets	Revenue from new markets	Number of employees relocated to new markets	Increase revenue from new markets by 10% per year	Develop and implement a relocation program for employees moving to new markets

Reduce environmental impact	Energy consumption per unit produced	Water consumption per unit produced	Reduce energy consumption by 10% and water consumption by 5% per year	Implement energy and water conservation measures
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Measures:

- Goal Achievement: Ensure that 90% of employees meet or exceed their annual performance goals.
- Performance Appraisal Completion: Complete performance appraisals for all employees on time, with 100% compliance.

## 7. Talent Management:

Objective: Identify, develop, and retain top talent.

Measures:

- Succession Planning: Have succession plans in place for key positions, with at least one identified successor for each role.
- Talent Pipeline: Develop a talent pipeline by identifying and grooming high-potential employees for future leadership roles.

These objectives and quantifiable measures provide a structured approach to managing various HR functions within the organization.

Strategic Theme	Objective	Business Measure	HR Measure	Target
Team Productivity	Increase team productivity	Units produced per hour	5% increase year-over-year	Provide employees with access to training and development resources
Team Quality	Improve the quality of team's work	Percentage of products that meet or exceed quality standards	95%	Implement a quality control process and provide employees with feedback on their work
Team Food Safety	Ensure team's food safety compliance	Percentage of audits that pass without any violations	100%	Provide employees with food safety training and implement regular

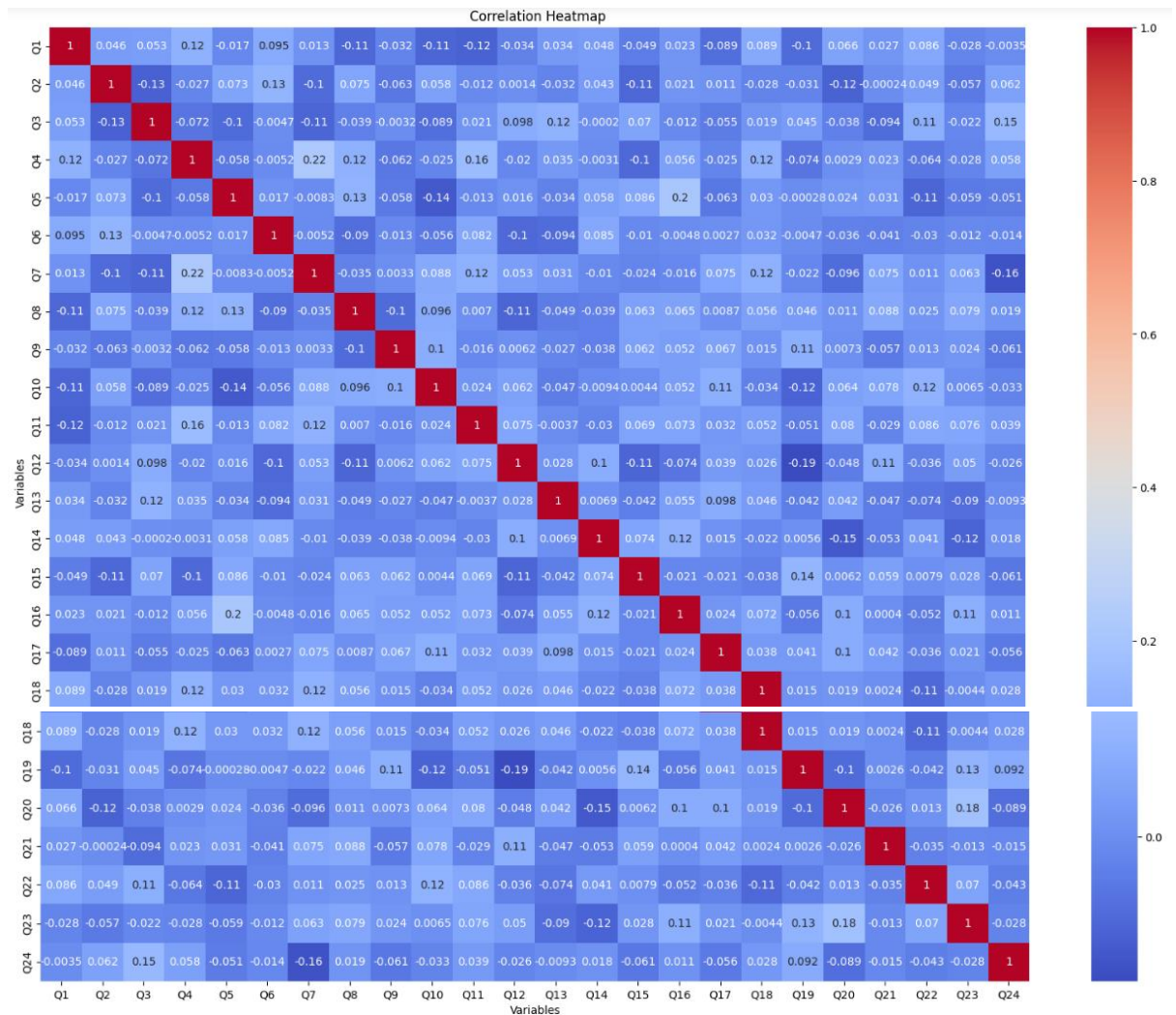
				food safety inspections
Team Retention	Reduce team turnover	Percentage of team members who leave the company within one year	10%	Conduct exit interviews and implement retention programs
Team Engagement	Increase team engagement	Team engagement score	80%	Implement regular team surveys and team-building activities

## Operational Analytics:

### Culture Analysis:

	S.NO	Position	Experience	Bars	Bars ratio	Q1	Q2	Q3	Q4	Q5	...	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24
0	1	Cook	22	1	0.80	3	4	2	3	5	...	3	5	4	4	5	5	4	5	5	2
1	2	Cleaner	18	1	0.85	5	1	1	4	1	...	2	1	4	1	2	5	2	4	4	2
2	3	Frontline	6	1	0.70	3	3	4	2	1	...	3	1	4	2	5	4	4	4	5	2
3	4	Waiter	11	3	0.70	2	1	1	4	4	...	3	5	3	4	4	1	1	4	3	1
4	5	Waiter	19	4	0.70	1	3	4	1	4	...	3	3	5	2	4	2	5	2	5	5

5 rows × 29 columns



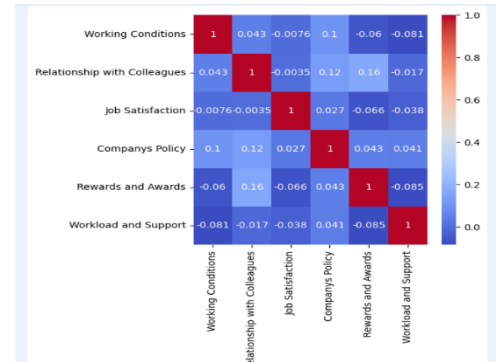
	Working Conditions	Relationship with Colleagues	Job Satisfaction \
0	15	10	13
1	13	11	10
2	7	9	16
3	14	14	10
4	13	14	12

	Compans Policy	Rewards and Awards	Workload and Support
0	18	19	2
1	8	15	3
2	12	17	3
3	16	9	1
4	14	14	5



	Working Conditions	Relationship with Colleagues	Job Satisfaction	\
0	15	10	13	
1	13	11	10	
2	7	9	16	
3	14	14	10	
4	13	14	12	
5	16	15	12	
6	13	7	11	
7	18	13	14	
8	17	12	13	
9	12	16	12	
	Companys Policy	Rewards and Awards	Workload and Support	Score \
0	18	19	2	77
1	8	15	3	60
2	12	17	3	64
3	16	9	1	64
4	14	14	5	72
5	18	9	2	72
6	13	12	3	59
7	12	9	4	70
8	10	9	3	64
9	12	16	2	70
Satisfaction				
0	1			
1	0			
2	1			
3	1			
4	1			
5	1			
6	0			
7	1			
8	1			
9	1			



Number of data points in each cluster=

Cluster

0 101

1 99

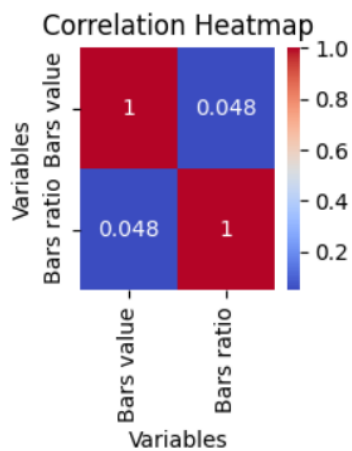
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	Experience	Bars	Bars ratio	Q1	Q2	Q3	Q4	Q5	Q6	Q7	...	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Cluster
0	22	1	0.80	3	4	2	3	5	5	2	...	5	4	4	5	5	4	5	5	2	0
1	18	1	0.85	5	1	1	4	1	4	4	...	1	4	1	2	5	2	4	4	2	1
2	6	1	0.70	3	3	4	2	1	1	3	...	1	4	2	5	4	4	4	5	2	1
3	11	3	0.70	2	1	1	4	4	3	3	...	5	3	4	4	1	1	4	3	1	0
4	19	4	0.70	1	3	4	1	4	4	4	...	3	5	2	4	2	5	2	5	5	0

5 rows × 28 columns

## Bars and HCRI Index:

S.NO	Position	Experience	Bars value	Bars ratio	Q1	Q2	Q3	Q4	Q5	...	Q19	Q20	Q21	Q22	Q23	Q24	Volume	Cost	Req_Experience	Result	
41	42	Cashier	15	4	0.75	5	1	2	3	3	...	3	5	4	4	2	2	28	112	0	2
7	8	Chef	22	4	0.80	4	4	1	5	4	...	4	4	3	1	1	4	43	81	4	3
13	14	Cleaner	22	4	0.85	5	4	4	4	3	...	4	1	5	4	3	4	71	117	4	1
17	18	Cook	18	4	0.80	3	3	4	5	2	...	4	5	5	3	5	5	23	116	2	5
61	62	Frontline	15	4	0.70	2	5	2	3	5	...	5	1	2	5	4	4	24	110	0	1



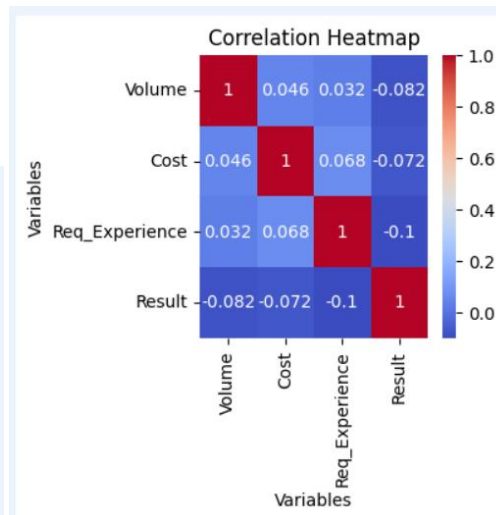
## Recruitment Analysis:

J:

	S.NO	Position	Experience	Bars value	Bars ratio	Q1	Q2	Q3	Q4	Q5	...	Q19	Q20	Q21	Q22	Q23	Q24	Volume	Cost	Req_Experience	Result
15	16	Cashier	6	1	0.75	4	2	2	1	1	...	2	1	4	4	1	1	76	114	3	2
5	6	Chef	14	1	0.80	3	5	2	4	5	...	5	3	4	1	1	2	49	114	3	2
1	2	Cleaner	18	1	0.85	5	1	1	4	1	...	2	5	2	4	4	2	84	113	3	3
0	1	Cook	22	1	0.80	3	4	2	3	5	...	5	5	4	5	5	2	62	81	3	5
2	3	Frontline	6	1	0.70	3	3	4	2	1	...	5	4	4	4	5	2	21	92	2	1

	Bars ratio	Experience	Cluster
0	0.80	22	3
1	0.85	18	3
2	0.70	6	2
3	0.70	11	0
4	0.70	19	3
..	...	...	...
195	0.75	25	1
196	0.80	19	3
197	0.80	8	2
198	0.85	10	2
199	0.75	29	4

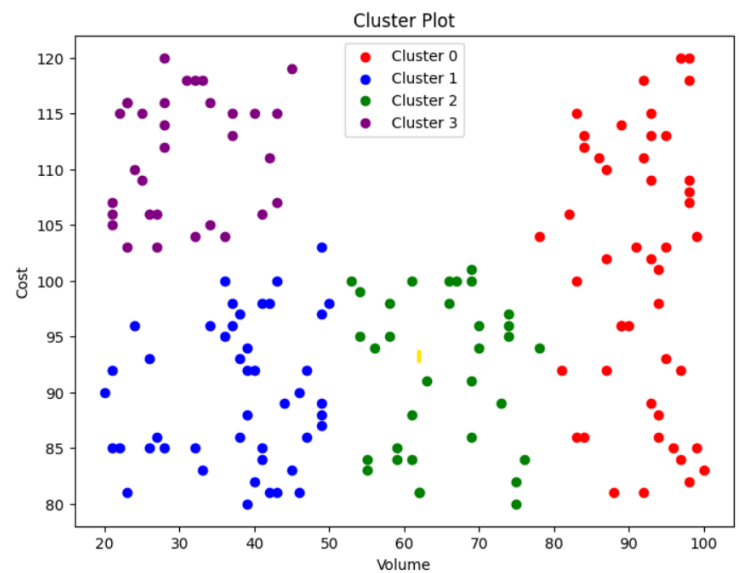
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## Training and Development:

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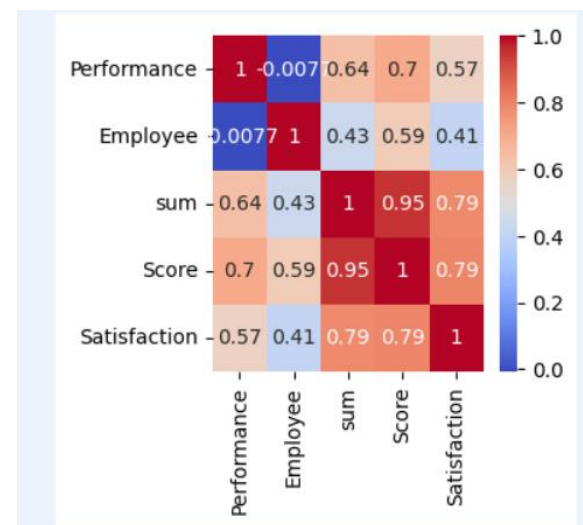
	Volume	Cost	Cluster
0	62	81	2
1	84	113	0
2	21	92	1
3	61	88	2
4	73	89	2



	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Performance	Employee	sum	avgerage
0	1	3	2	5	3	1	1	5	4	4	32	2.909091
1	1	1	4	4	3	5	4	5	4	3	35	3.181818
2	1	4	3	4	1	5	3	2	2	5	30	2.727273
3	3	4	1	3	5	5	2	5	5	3	38	3.454545
4	1	3	1	2	1	1	5	4	3	1	27	2.454545

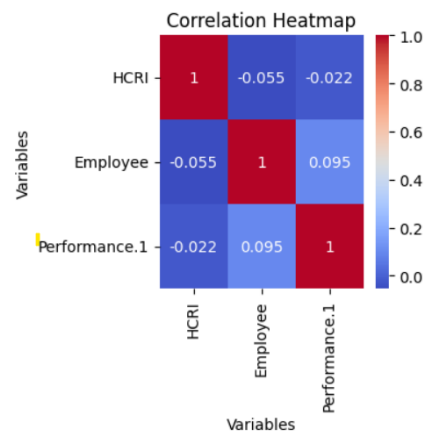
## Performance and Talent management:

				Performance	Employee	sum	Score	Satisfaction	
				0	13	11	38.909091	62.909091	0
				1	12	18	41.181818	71.181818	1
				2	12	12	37.727273	61.727273	0
				3	13	17	44.454545	74.454545	1
				4	7	13	30.454545	50.454545	0
				5	17	11	42.272727	70.272727	1
				6	11	11	37.909091	59.909091	0
				7	6	11	37.727273	54.727273	0
				8	11	8	31.363636	50.363636	0
				9	12	9	37.909091	58.909091	0
				Satisfaction					
				0	101				
				1	99				
				Name: count, dtype: int64					



5]:

	Target_Given	Performance	Cluster
0	90	4	1
1	85	4	0
2	92	3	1
3	88	4	0
4	87	3	0



']:

	Employee	Performance.1	Cluster
0	8	4	1
1	6	4	0
2	7	3	1
3	9	4	1
4	5	3	0

## Conclusion:

50 Foods, as a growing player in the food industry, should pay close attention to the feedback provided by its employees and continuously work on improving its HR processes to create a more productive and satisfied workforce. Here are some conclusions drawn from data analysis and employee feedback:

In overall the analysis is done for the data that has been collected data. The data has been checking their datatype and proceed with checking null values. Mostly the data does not come with null values so it has been proceeding with correlation for the numerical values. The data from the questionnaire does not correlate with each other. Then it has been grouped and applied clustering algorithm.

1. Investing in Employee Development: The organization appears to invest in the development of its employees, providing training opportunities. However, it's crucial to ensure that these training programs are effective and aligned with employees' day-to-day tasks. Regular feedback from employees should be sought to tailor training programs to their specific needs and to improve their skill sets.

2. Employee Performance Assessment: The performance rating distribution indicates that performance evaluations are following a typical bell curve. However, it's essential to examine whether these ratings correlate with actual employee performance. It might be beneficial to review and potentially refine the performance assessment process to ensure it accurately reflects employee contributions.

3. Employee Engagement: Employee engagement levels seem moderately high, with a significant portion of the workforce staying with the organization for a considerable time. However, it's important to explore the factors contributing to this engagement and identify areas for improvement. Introducing innovative cultural practices and values that resonate with employees can further enhance engagement levels.

4. Addressing Attrition: High attrition rates, especially among younger recruits, are a concern. To retain talent, 50 Foods should focus on providing clear career growth opportunities and development programs. Attractive incentives and benefits should also be part of the retention strategy to prevent employees from seeking opportunities elsewhere. Managing attrition effectively can help maintain a stable and experienced workforce.

5. Diversity and Inclusion: The organization should take diversity measures seriously, ensuring a balanced gender ratio and creating a more inclusive workplace. Embracing diversity can lead to a more engaging and innovative

environment, which is especially relevant in the food industry, where a wide range of perspectives can drive creativity and better cater to a diverse customer base.

In conclusion, 50 Foods should continue to prioritize its employees' well-being, development, and engagement to foster a more successful and sustainable presence in the competitive food industry. Regularly assessing and adapting HR practices based on employee feedback and data analysis will be key to achieving these goals.

## Annexure:

### Dummy Data Creation:

S.no	Name	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Performance Satisfaction(5)	Employee Satisfaction(5)	sum	average
1	JON	5	4	2	2	2	3	3	5	1	3	1	4	4	31	2.81818
2	EUGENE	4	4	4	1	2	1	2	5	1	4	5	4	2	33	3
3	RUBEN	1	5	5	1	3	2	5	3	1	1	5	4	4	32	2.90909
4	CHRISTY	5	1	2	2	2	1	5	2	4	2	3	3	1	29	2.63636
5	ELIZABETH	4	2	2	5	1	3	3	4	4	1	5	5	5	35	3
6	JULIO	2	1	3	1	1	4	1	5	5	4	3	4	4	30	2.72727
7	MARCO	4	4	2	2	5	4	1	3	3	3	5	5	1	36	3.27273

S.NO	Name	Age	Gender	Email	Department	Position	Experience	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Sum	Average	
1	JON	53	M	jon24@adventure-works.com	Cash Handling	Sous Chef	18	3	4	2	3	5	5	2	2	4	1	3	2	5	3	3	5	4	4	5	5	4	5	5	3	86	3.58333	
2	EUGENE	42	M	eugene10@adventure-works.com	Cash Handling	Line Cook	7	5	1	1	4	1	4	4	1	2	2	4	4	2	2	2	1	4	1	2	5	2	4	4	1	68	3.19	
3	RUBEN	37	M	ruben35@adventure-works.com	Technical skills	Restaurant Manager	30	3	3	4	2	1	1	3	1	1	3	4	5	4	4	3	1	4	2	5	4	4	4	5	2	72	3.0487	
4	CHRISTY	25	F	christy12@adventure-works.com	Technical skills	Promo Chef	5	2	1	1	4	4	2	3	3	5	5	1	2	2	3	3	5	3	4	4	1	1	4	5	1	68	2.83333	
5	ELIZABETH	47	F	elizabeth5@adventure-works.com	Food Serving	Promo Chef	28	1	3	4	1	4	4	4	3	5	4	2	3	4	2	3	3	5	2	4	2	5	2	3	5	88	3.65555	
6	JULIO	26	M	julio1@adventure-works.com	Cash Handling	Line Cook	8	3	5	2	4	5	5	2	5	3	3	4	2	3	3	4	4	4	5	5	3	4	1	1	2	82	3.4087	
7	MARCO	26	M	marco14@adventure-works.com	Customer Service	Executive Chef	30	3	4	3	4	4	4	1	2	1	2	1	4	4	1	2	5	5	2	1	5	1	2	4	1	68	2.83333	
8	ROBIN	37	F	robin8@adventure-works.com	Technical skills	Sous Chef	8	4	4	1	5	4	5	4	4	3	2	2	4	3	5	3	1	4	4	4	3	1	1	4	4	79	3.2987	
9	SHANNON	33	M	shannon36@adventure-works.com	Food Serving	Line Cook	27	1	1	2	5	3	4	5	5	1	3	3	3	3	5	2	2	4	3	1	3	3	1	2	2	67	2.7987	
10	ELIZABETH	44	F	elizabeth5@adventure-works.com	Food Serving	Sous Chef	37	3	3	2	3	1	5	3	5	2	5	4	3	1	5	3	2	5	2	3	3	3	5	3	2	78	3.25	
11	CURTIS	31	M	curtis9@adventure-works.com	Technical skills	Restaurant Manager	27	3	4	1	1	5	2	3	1	5	5	2	2	2	2	2	4	4	4	2	1	1	3	2	4	3	69	2.79

S.NO	Name	Age	Gender	Email	Department	Position	Experience	Bars	Bars ratio
1	JON	53	M	jon24@adventure-works.com	Cash Handling	Cook	24	1	0.8
2	EUGENE	42	M	eugene10@adventure-works.com	Cash Handling	Cleaner	28	1	0.85
3	RUBEN	37	M	ruben35@adventure-works.com	Technical skills	Frontline	11	1	0.7
4	CHRISTY	25	F	christy12@adventure-works.com	Technical skills	Waiter	7	3	0.7
5	ELIZABETH	47	F	elizabeth5@adventure-works.com	Food Serving	Waiter	19	4	0.7
6	JULIO	26	M	julio1@adventure-works.com	Cash Handling	Chef	23	1	0.8
7	MARCO	26	M	marco14@adventure-works.com	Customer Service	Chef	6	1	0.8

S.NO	Position	Experience	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Bars value	Bars ratio	
1	Cook	22	3	4	2	3	5	5	2	2	4	1	3	2	5	3	3	5	4	4	5	5	4	5	5	2	1.00	0.8	
2	Cleaner	18	5	1	1	4	1	4	4	1	3	3	4	4	2	2	2	1	4	1	2	5	2	4	4	2	1.00	0.85	
3	Frontline	6	3	3	4	2	1	1	3	1	1	3	4	5	4	4	3	1	4	2	5	4	4	4	5	2	1.00	0.7	
4	Waiter	11	2	1	1	4	4	3	3	3	5	5	1	2	2	3	3	5	3	4	4	1	1	4	3	1	3.00	0.7	
5	Waiter	19	1	3	4	1	4	4	4	3	5	5	4	2	3	4	2	3	3	5	2	4	2	5	2	5	4.00	0.7	
6	Chef	14	3	5	2	4	5	5	2	5	3	3	4	2	3	3	4	4	4	4	5	5	3	4	1	1	2	1.00	0.8

Advertising Cost	Agent Fee	Referrals	Travel Allowance (TA)	Daily Allowance (DA)	Induction Program Cost	Performance Satisfaction	Time to Fill (Days)	Sourcing Channel
10,000	15,000	5,000	2,000	500	2,500	4.2	45	A (Agency)
9,000	12,000	4,500	2,200	550	2,300	4.5	50	R (Referral)
8,500	14,500	4,000	2,100	520	2,700	4	40	A (Agency)
10,200	13,800	5,200	2,300	600	2,200	4.8	55	J (Job Board)
9,800	15,200	4,800	2,400	580	2,400	4.3	48	R (Referral)
9,500	14,000	4,300	2,250	530	2,600	4.6	42	J (Job Board)
11,000	16,500	5,500	2,500	650	2,300	4.4	60	A (Agency)
10,400	15,800	5,000	2,100	520	2,500	4.7	47	J (Job Board)
8,900	14,200	4,700	2,300	590	2,800	4.1	38	R (Referral)

Code:

```
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt

df=pd.read_excel("E:\DCS\SEM-5\Human resource system Development
LAB\Culture analysis.xlsx",sheet_name="Data_1")
df.head()
df.isnull().sum()

selected_columns = df[['Q1', 'Q2', 'Q3', 'Q4', 'Q5', 'Q6', 'Q7', 'Q8', 'Q9', 'Q10', 'Q11', 'Q12',
'Q13', 'Q14', 'Q15', 'Q16', 'Q17', 'Q18', 'Q19', 'Q20', 'Q21', 'Q22', 'Q23', 'Q24']]

corr=selected_columns.corr()

plt.figure(figsize=(20,15))

sns.heatmap(corr, annot=True, cmap='coolwarm')

plt.xlabel('Variables')
plt.ylabel('Variables')

plt.title('Correlation Heatmap')

df1=df.iloc[:,5:]
```

```

print(df1.head())
from sklearn.preprocessing import StandardScaler
fnames=['Working Conditions','Relationship with Colleagues','Job
Satisfaction','Companys Policy','Rewards and Awards','Workload and Support']
f_dict=dict()
for i in range(0,6):
    f_dict[fnames[i]]=df1.iloc[:,4*i+1:4*i+5].sum(axis=1)
fac_df=pd.DataFrame(f_dict)
print(fac_df.head())
fac_df["Score"]=fac_df.iloc[:,0:6].sum(axis=1)
mean=int(fac_df[["Score"]].mean())
fac_df.loc[fac_df['Score'] >= mean, 'Satisfaction'] = '1'
fac_df.loc[fac_df['Score'] < mean, 'Satisfaction'] = '0'
print(fac_df.head(10))
count=fac_df["Satisfaction"].value_counts()
print(count)
cor=fac_df.iloc[:,0:6].corr()
plt.figure(figsize=(5,5))
sns.heatmap(cor,cmap="coolwarm" , annot = True)
plt.show()
from sklearn.cluster import KMeans
kmeans= KMeans(n_clusters =2, random_state = 42)
kmeans.fit(fac_df)
pred = kmeans.predict(fac_df)
df['Cluster'] = pd.DataFrame(pred, columns=['cluster'] )
print('Number of data points in each cluster= \n', df['Cluster'].value_counts())
df.head()
from sklearn.cluster import KMeans
import matplotlib.pyplot as plt
bars=df['Bars ratio'].values
age=df['Experience'].values
feat=np.column_stack((bars,age))
model=KMeans(n_clusters=5,n_init=10)
model.fit(feat)
label = model.predict(feat)
cluster_centers = model.cluster_centers_
df['Cluster'] = label
cluster_df = pd.DataFrame({
    'Bars ratio': df['Bars ratio'],
    'Experience': df['Experience'],
    'Cluster': df['Cluster']
})

```

```

print(cluster_df)
cluster_df = pd.DataFrame({
    'Volume': df['Volume'],
    'Cost': df['Cost'],
    'Cluster': df['Cluster']
})

# Create a scatter plot with different colors for each cluster
plt.figure(figsize=(8, 6)) # Set the size of the plot
colors = ['red', 'blue', 'green', 'purple'] # Customize colors for each cluster
for cluster_num, color in enumerate(colors):
    cluster_data = cluster_df[cluster_df['Cluster'] == cluster_num]
    plt.scatter(cluster_data['Volume'], cluster_data['Cost'], c=color, label=f'Cluster
{cluster_num}')

plt.xlabel('Volume')
plt.ylabel('Cost')
plt.title('Cluster Plot')
plt.legend()
plt.show()
fac_df["Score"]=fac_df.iloc[:,0:6].sum(axis=1)
mean=int(fac_df[["Score"]].mean())
fac_df.loc[fac_df['Score'] >= mean, 'Satisfaction'] = '1'
fac_df.loc[fac_df['Score'] < mean, 'Satisfaction'] = '0'
print(fac_df.head(10))
count=fac_df["Satisfaction"].value_counts()
print(count)
kmeans= KMeans(n_clusters =2, random_state = 42)
kmeans.fit(fac_df)
pred = kmeans.predict(fac_df)
df['Cluster'] = pd.DataFrame(pred, columns=['cluster'] )
print('Number of data points in each cluster= \n', df['Cluster'].value_counts())
df.head()
cluster_counts = df['Cluster'].value_counts()
plt.figure(figsize=(3, 3))
cluster_counts.plot(kind='bar')
plt.title('Data Points in cluster')
plt.xlabel('Cluster')
plt.ylabel('Count')
plt.show()
selected_columns = df[['Target_Given', 'Performance']]
cor= selected_columns.corr()

```



```

plt.figure(figsize=(2,2))
sns.heatmap(cor, annot=True, cmap='coolwarm')
plt.xlabel('Variables')
plt.ylabel('Variables')
plt.title('Correlation Heatmap')
plt.figure(figsize=(2,2))
sns.heatmap(cor, annot=True, cmap='coolwarm')
plt.xlabel('Variables')
plt.ylabel('Variables')
plt.title('Correlation Heatmap')
cluster_df = pd.DataFrame({
    'Target_Given': df['Target_Given'],
    'Performance': df['Performance'],
    'Cluster': df['Cluster']
})
cluster_df.head()
selected_columns = df[['HCRI','Employee','Performance.1']]
cor= selected_columns.corr()
plt.figure(figsize=(3,3))
sns.heatmap(cor, annot=True, cmap='coolwarm')
plt.xlabel('Variables')
plt.ylabel('Variables')
plt.title('Correlation Heatmap')
from sklearn.cluster import KMeans
import matplotlib.pyplot as plt
bars=df['Employee'].values
age=df['Performance.1'].values
feat=np.column_stack((bars,age))
model=KMeans(n_clusters=2,n_init=10)
model.fit(feat)
label = model.predict(feat)
cluster_centers = model.cluster_centers_
df['Cluster'] = label
from sklearn.cluster import KMeans
import matplotlib.pyplot as plt
bars=df['Employee'].values
age=df['Performance.1'].values
feat=np.column_stack((bars,age))
model=KMeans(n_clusters=2,n_init=10)
model.fit(feat)
label = model.predict(feat)
cluster_centers = model.cluster_centers_

```

## BI Dashboard:

