Sunshine Deserts Project (Group 4)

future in tech

Technology Ireland ICT Skillnet

2025

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A comparison of the total number of employees, total salary spend, and gender balance between 1991 and 2001, both across the company as a whole and within individual departments.

- Salary Spend Comparison (1991 vs. 2001)

- Gender Balance Comparison (1991 vs.2001)

- Employee Churn (2001 only)

Teamwork organisation and planning

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Maria Vodolazskaya - Team-leading, Organisation, Presentation

Orla Devoy, Anastasiia Smurova - Salary Trends

Marco Granada - Gender Balance

Ashita Atri - Employee Churn

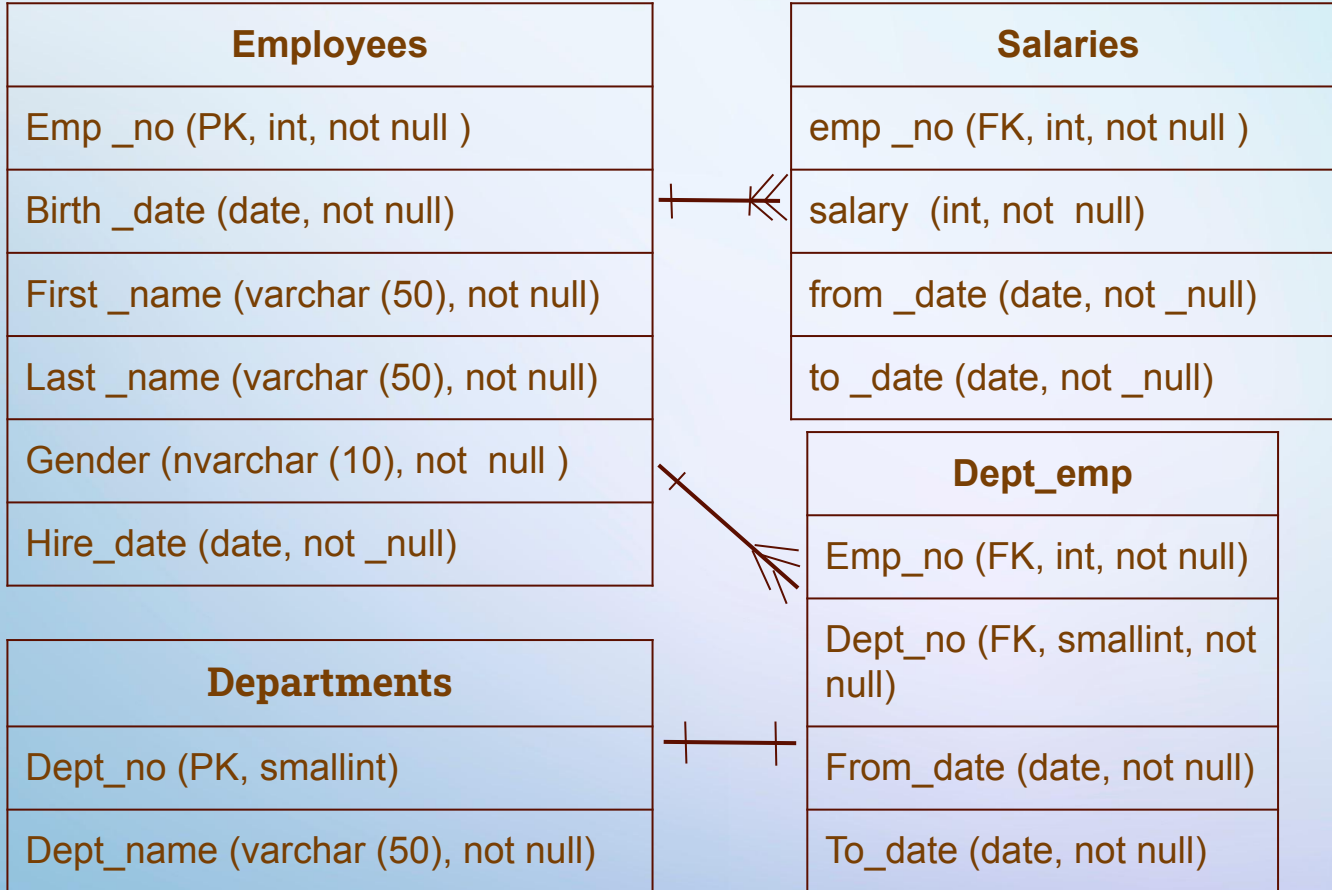Maryna Yerokhina - Recommendations, Presentation

Gerard Healy - Mentor

WE GOT ONE NEW BABY!

Project kick-off	March		April				May				June	
	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	
	Database processing		Data analysis									09/06/2025
				Insights, conclusions and recommendations								
					Making a presentation					Presentation delivery practice		

Database structure

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Employees
Emp _no (PK, int, not null)
Birth _date (date, not null)
First _name (varchar (50), not null)
Last _name (varchar (50), not null)
Gender (nvarchar (10), not null)
Hire_date (date, not _null)

Salaries
emp _no (FK, int, not null)
salary (int, not null)
from _date (date, not _null)
to _date (date, not _null)

Dept_emp
Emp_no (FK, int, not null)
Dept_no (FK, smallint, not null)
From_date (date, not null)
To_date (date, not null)

Departments
Dept_no (PK, smallint)
Dept_name (varchar (50), not null)

Dataset quality

Employees in `dept_emp` not found in `employees`	✅
Employees in `salaries` not found in `employees`	✅
Overlapping salary periods	✅
Department start date earlier than hire date	✅
Salary start date earlier than hire date	✅
Employees under 18 at the time of hire	✅

Removed references where "to" and "from" days are equal

For each year values we considered the data at the 1st of January of that year

Updated where to_date = '9999-01-01' to='2002-01-01' *(*Assumed these employees were still employed)*

Salary Trends 1991 - 2001

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Total Salary Expenditure across the company in 2001 **shows at 2.5 times that of 1991

**Salary Expenditure** and **Headcount** are highest year on year in Development.

Cost per Employee (Avg Salary) up ~25% in 10 yrs to 2000 **Avg Salary** up 37% in a year to 2001.
(**Punt to Euro conversion 1 IRP ~ 127€ may account for this spike or the prorated calculation assumptions may be inflating 2001 figures).

Avg Salary is highest in Sales (23% > Avg), followed by Marketing & Finance.
Lowest Avg Salaries are paid in HR (currently 38% < Sales) and then in Customer Care.

Rate of increase in Headcount reduced steadily over 10 yrs.
Headcount peaked in '99 then started to decline for the first time in 2000/2001 while **Avg Salaries** appear to have spiked in the same period.

Gender Balance Comparison (1991 vs.2001)

Women to Men Ratio Study
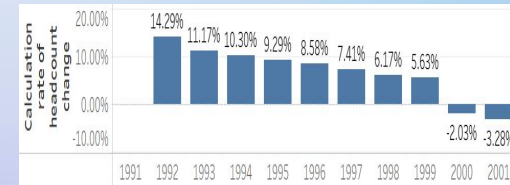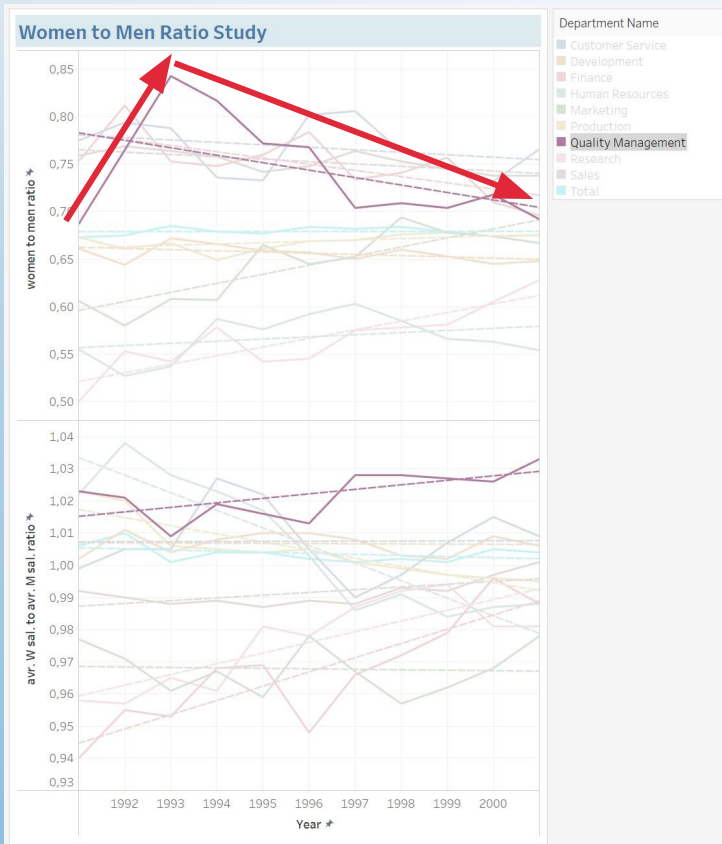
|	Number ratio			Average sal. ratio		
	1991	L.R. slope	2001 – 1991	1991	L.R. slope	2001 – 1991
Quality Management	0,687	-0,0079	0,005	1,023	0,0014	0,0?
Finance	0,753	-0,0066	-0,05	0,94	0,0044	0,048
Customer Service	0,775	-0,0026	-0,009	0,999	0	0,0091
Sales	0,759	-0,0025	-0,02?	0,992	0,0009	0,009
Development	0,661	-0,0012	-0,01?	1,002	0	0,00?
Production	0,673	0,0014	0,002	1,023	-0,0025	-0,028
Human Resources	0,555	0,0023	-0,00?	1,022	-0,0055	-0,03?
Research	0,5?	0,0091	0,128	0,958	0,0033	0,023
Marketing	0,606	0,0095	0,061	0,977	0,0001	0,001
Total	0,673	-0,00003	0,002	1,006	0,0003	-0,002

Observations:

- Company's gender ratio of **2 women per 3 men**.
- Company's salary average **similar** between genders.
- Departments with **more women** saw **a decline**; those **with fewer saw a rise.**
- Quality Management had a brief spike in female staff, then reverted.
- **Salary trends often moved opposite to employee gender ratios**.
    - Exceptions for Research and Marketing

Churn Overview by Department − 2001

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Employee Exits by Dept (2001)
Total exit count per department
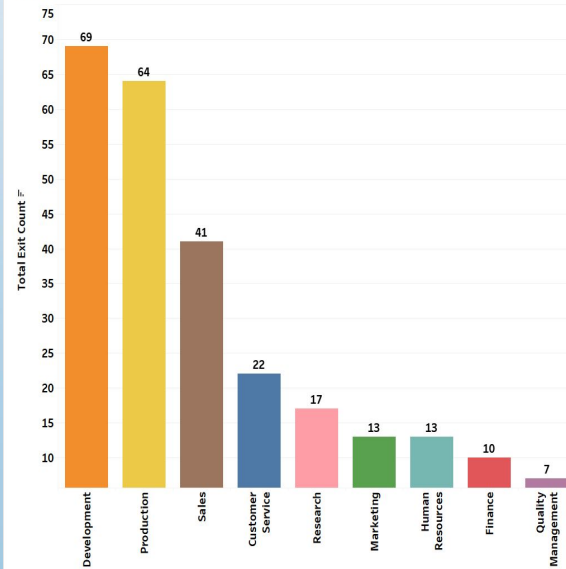
Insights:

–In 2001, **Development** and **Production** had the highest number of employee exits, with a count of **69** and **64** departures respectively.

–The **Highest churn rates** are in:
Customer services:- 3.10%
Research:- 2.94%
Production:- 2.84%

– **Quality Management** had the **lowest churn (1.21%)**, showing strong retention.

–**The average churn rate** across **departments** was **2.58%**. Overall trends show that higher churn is a concern, often linked to **lower engagement,** while **lower churn reflects stronger retention and team stability.**

Churn % by Dept (2001)
Percentage of employees who left

Company Avg
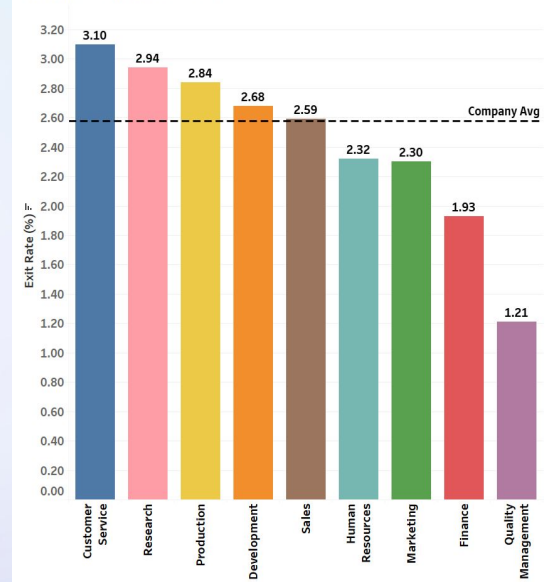
Conclusion:

The analysis indicates that certain departments would benefit from stronger support systems. Enhancing workload management, providing clearer career development paths, and strengthening early-stage engagement can help reduce churn and improve long-term employee retention.

Recommendations:

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Gender Balance 🧍‍♀️ :

Further analyses is needed:

★ Study the Quality Management department as a special case

★ Study the Research and Marketing departments as improving departments

★ Study the Finance, Customers Service and Sales as deteriorating departments

Salary Management 💰:

★ Conduct annual pay equity and inflation-aligned salary audits.

★ Benchmark against other industry salary standards both domestic and globally

★ Investigate further the higher sales salaries to understand if bonuses/commissions are included.

★ Review Development Headcount to improve efficiencies

★ Review drop in headcount and spike in salary expenditure 2000/2001. Recommend specify currency units in the database fields.

Department-wise Churn 🔁:

★ Target high-turnover areas with tailored retention actions.

★ Monitor early signs of disengagement (e.g. absenteeism) and act proactively.

★ Track churn by manager and tenure to identify local issues.

Data Limitations & What's Needed for Deeper Analysis

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🌍 External Context (Business Environment)

- No data on **inflation** or **cost of living** – limits salary evaluation.
- No information on **country**/ **region**/**currency**
- No **industry or competitor benchmarks** – we can't compare to peers.
- No data on **revenue, profit, or budget** – unclear if salary costs are sustainable.

👥 Internal HR Data

- No info on **contractors, job roles, levels, or departments by seniority**.
- **Bonuses and commissions** not included – critical for Sales/Development.
- No **training and promotion data**.
- No **exit reasons**.
- No **performance metrics (KPI)** – can't assess value vs. pay.

📊 Why It Matters

- These gaps limit how far we can go with conclusions.
- With richer business and HR data, analysis would be deeper and more precise.
- Future decisions would be better supported with full visibility.

Thank you for your attention!