INFO5990:
Professional
Practice in IT

Week 4:
People and Teams

Dr Mafruha Mowrin Hossain
School of Computer Science

THE UNIVERSITY OF
SYDNEY

Remember…

Did you complete the quiz?
Did you do the readings?

The lecture will start at 7:05pm

"*People think that computer science is the art of geniuses but the actual reality is the opposite, just many people doing things that build on each other, like a wall of mini stones*".

Donald Knuth

Quick Overview of Today

Part A: Theory

Focus: Sourcing and managing human resources; consulting and contracting; team structures.

Part B: Discussion on project success / failure

Team Work

- What is a team?
  - "A group of people with a full set of complementary skills required to complete a task, job, or project."
    http://www.businessdictionary.com/definition/team.html
  - "A group is an intact social system, complete with boundaries, interdependence for some shared purpose, and differentiated member roles" [Hackman et al]
  - "A **team** is a group of individuals working together to achieve a goal.

    A group does not necessarily constitute a team.

    Teams normally have members with complementary skills and generate synergy through a coordinated effort which allows each member to maximize their strengths and minimize their weaknesses."

    https://en.wikipedia.org/wiki/Team

How to achieve effective teamwork in the workplace?

- For a team to work effectively, the team should look at the group climate and the process in which they will complete their tasks.

- **Some effective teamwork practices:**

  - A priority and reward teamwork

  - Clarify roles, responsibilities, and accountabilities

  - Set clear goals

  - Communicate with each other

  - Make decisions together

  - Build trust and get to know each other

  - Celebrate differences/diversity

  - Examine and improve teamwork processes and practices

Are you good at teamwork?

Team Work

Activity

- In a small group (4-5 people around you) …
    - Discuss amongst your group members and determine a team that you could form and which you would be good at…
    - This can be anything – a soccer team, rock band, a business start-up, …

Team Work – Mistaken Beliefs

- **Great Individuals Make Great Teams –** Teams that work together harmoniously perform better than those with lots of conflicts.
    - https://hbr.org/video/5566537368001/the-explainer-how-management-teams-can-have-a-good-fight
    - https://hbr.org/video/5542728022001/whiteboard-session-clashing-with-a-coworker-heres-what-to-do

- **It is either Right or Wrong –** Team dynamics (right people in the right roles) are largely caused by the leader's style (authoritarian versus democratic).

- Larger teams perform better than small ones.

- Teams that stay together for a long time perform better
  https://hbr.org/2009/05/why-teams-dont-work

Team Work – Diversity

- **What do we mean by diversity?**
  "the inclusion of different types of people … in a group or organization".
  https://www.merriam-webster.com/dictionary/diversity

- We all have biases (sometimes we prefer working with people like us- implicit bias)
  - We all respond without thinking…
  - Quick test…

- **Awareness of implicit bias.**
  - https://www.youtube.com/watch?v=dVp9Z5k0dEE
  - https://www.projectimplicit.net/

- **All teams are diverse and diversity matters.**
  - https://twitter.com/nke_ise/status/897756900753891328

Team Work – Successful Teams

Why are some groups successful?

Hackman identified three attributes of such groups

- They satisfy internal and external clients
- They develop capabilities to perform in the future
- Members find meaning and satisfaction

And then five factors that increase the chances for success:

- A real team (shared task; clear roles; …)
- Compelling direction (SMART goals?)
- Enabling Structure (A well-organized team with balanced skills; size; internal structure; skills balance; …)
- Supportive Context (reward; development; information; …)
- Expert Coaching (support; mentoring; evaluation; …)

[from Hackman] – see https://hbr.org/2009/05/why-teams-dont-work

Characteristics of effective and great teamwork

Great teamwork happens wherever great teams can be together.

Effective characteristics –

- Good communication
- Individual talent
- Team sense of belonging
- Strong leadership
- Clear structure
- Feedback
- Positive attitude
- Solution-focused teams

Team Work for IT Professionals

- Multi-disciplinary
  - e.g. business; IT; creative design; …
- Multi-faceted
  - e.g. analyst; architect; coder, tester; …
- Collaborative
  - e.g. coder; tester; …
- Traditional plan-and-document structures
- Agile such as SCRUM
  - e.g. pair programming

https://edubirdie.com/examples/the-importance-of-effective-teamwork-in-information-technology-and-the-computing-industry/

Team Work for Students

- **Why are student research projects different from professional projects?**

  - **Lack of fully shared fate**
  - **Different scope** (limited in scale)
  - **Different goals** (Students aim for learning, while companies aim for profit and efficiency.)
  - **Different methodology** (Companies follow industry standards, while students often have more flexibility in their approach)
  - **Not the whole work => Different schedules** (Student projects follow academic calendars, while IT projects have market-driven deadlines)

- **How do you deal with these issues?**

Team Work – Successful Student Teams

Characteristics of groups that worked effectively:

- equal contributions
- full discussion of issues
- member support
- High quality result & high level of member satisfaction

Common problems that prevent groups working effectively:

- problems with logistics
- problems with allocation of tasks
- coordination of member contributions
- lack of commitment from some group members
- Quality of group product lower than individual product, & high level of stress and dissatisfaction

Team Work – Successful Student Teams

Strategies for improving group dynamics

- **Setting up the group:**

    Positive organisational systems such as drawing up a team constitution and open discussion in the first meeting of your group can help the development of a good dynamic.

- **Dealing with differences:**

    In universities today, most groups are going to include people from different cultural backgrounds. Again, open discussion and tolerance are key factors for success here.

- **Dealing with negative behaviour:**

    Aggression, blocking, controlling, freeloading.

Team Work

Search for:

Team effectiveness

Self-managed teams

Group conflict

Team efficacy…

Learn about the theory of teams!

Sourcing IT Talent

How do organisations recruit IT Talent?

Sourcing IT Talent

– Options include:

- Hire a recruitment company to source IT candidates
- Direct recruitment
- Permanent job offers
- Contract staff
- Outsource / local and international
- LinkedIn

- Any others?

Source:Pageuppeople

Talent Sourcing Process

Options include:

Creating a sourcing plan and strategy (What kind of talent ?)

Executing the sourcing plan and strategy (Advertising, reaching out to potential candidates, and starting the search.)

Vetting the talent pool (Assessing technical skills before making a decision.)

Moving qualified candidates through the talent pipeline (Final Hiring process for successful candidate)

Key Challenges

What are

the key challenges of sourcing talent?

Talent Sourcing Challenges

- **The common challenges in talent sourcing –**

- Attracting candidates with the right skills
- Finding the ideal candidate profile
- Building a strong employer brand
- Sourcing candidates proactively
- Ensuring your sourcing processes are fair and equitable

Source: Listing down the key challenges facing the recruitment sector (linkedin.com)
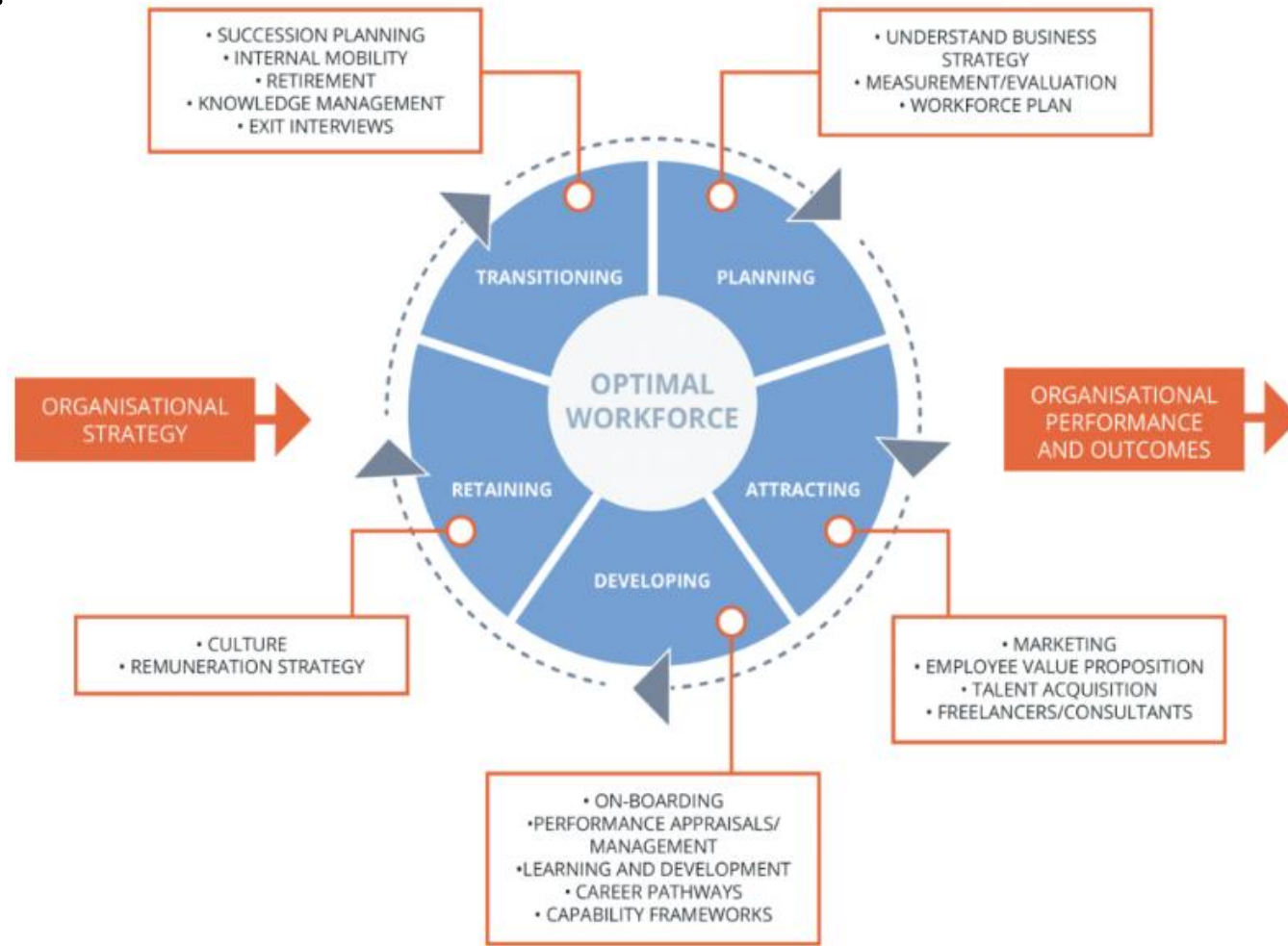
Managing IT Talent

Top strategies for managing IT Talent are:

- **Detailed Job descriptions**
  - Well-informed, detailed job description helps the sourcer, the sourcing software, and the candidate understand the job-role better
- **Person organisation fit (Employees should feel like they belong)**
  - Personal and organizational values need to have a certain degree of overlap for any employee to feel at home within the organization
- **Collaborate-coach-evolve**
  - effective involves creating a culture of coaching, mentoring, and collaboration
- **Reward and recognising right**
  - goes beyond financial rewards and bonus packages
- **Opportunities for continuous improvement**
  - employees need to be equipped with the right tools to be able to maximize their own potential

Managing IT Talent

Talent Management Process Model- how companies manage talent over time?

Nurturing and Retaining IT Talent

A Deloitte survey showed organizational culture is fundamental in attracting and retention TOP IT talent and **strategies are:**

- **Differentiate compensation based on performance**– Meaning, companies should reward top performers better than those who are average.

- **Provide access to coaching and mentoring–** No one wants to feel stuck in their career. People stay longer in companies that invest in their growth.

- **Offer job and career flexibility–** Work-life balance matters! Flexibility, like remote work, is now an expectation, not a perk.

IT Recruitment Challenges – Australia

IT organisations across Australia continue to confront a range of recruitment challenges.

The three biggest recruitment challenges faced by IT organisations in Australia today –

1. Competitive pay (47%) – Companies are struggling to offer salaries that match market expectations.
2. Attracting talent (33%) – Just posting a job ad doesn't cut it anymore; companies need to actively source and convince talent.
3. Skills shortage (20%) – There simply aren't enough skilled IT professionals to meet demand.

https://www.hays.com.au/it/blog/-/blogs/the-challenges-in-recruiting-top-tech-talent

Your Career Development

How many hours have you spent planning your career over the last 12 months?

Source : Ryerson University

Do you know what you want to do in 2 years? 5 years?

Look at your strength and weakness area's !

Change Management?

2007 Copyright Prosci and Bill Cigliano

What about the "people side" of projects?

What is Change Management?

On a project level:

"Change management is a structured process and set of tools for leading the people side of change to achieve a desired outcome."

(Prosci 2002)

Change Management for IT vs. Change Management for <u>People</u>

This is Organisational Change Management (or <u>OCM</u>)

On an organization level

A leadership competency for enabling change within an organisation.

A strategic capability designed to increase change capacity and responsiveness.

Reasons for applying OCM?

The number one obstacle to success for major change projects is:

employee resistance and the ineffective management of the people side of change

Impacts of NOT doing change management

The difference between project management and change management

Focus:
Technical side of moving from current state to future state

Project Management →

Current	Transition	Future

Change Management →

Focus:
People side of moving from current state to future state

Solution is designed, developed and delivered effectively
(Technical side)

+

Solution is embraced, adopted and utilised effectively
(People side)

= SUCCESS

Complementary disciplines with a common objective

Change is a process…

2007 Copyright Prosci and Bill Cigliano

Where you are today

Where you want to be

The transition state creates stress and anxiety

Employees are comfortable with and prefer the current state

The future state is unknown or not well understood

Current state

Transition state

Future state

States of change

Early 1990's   Early 2000's

Utilising an organisational perspective…

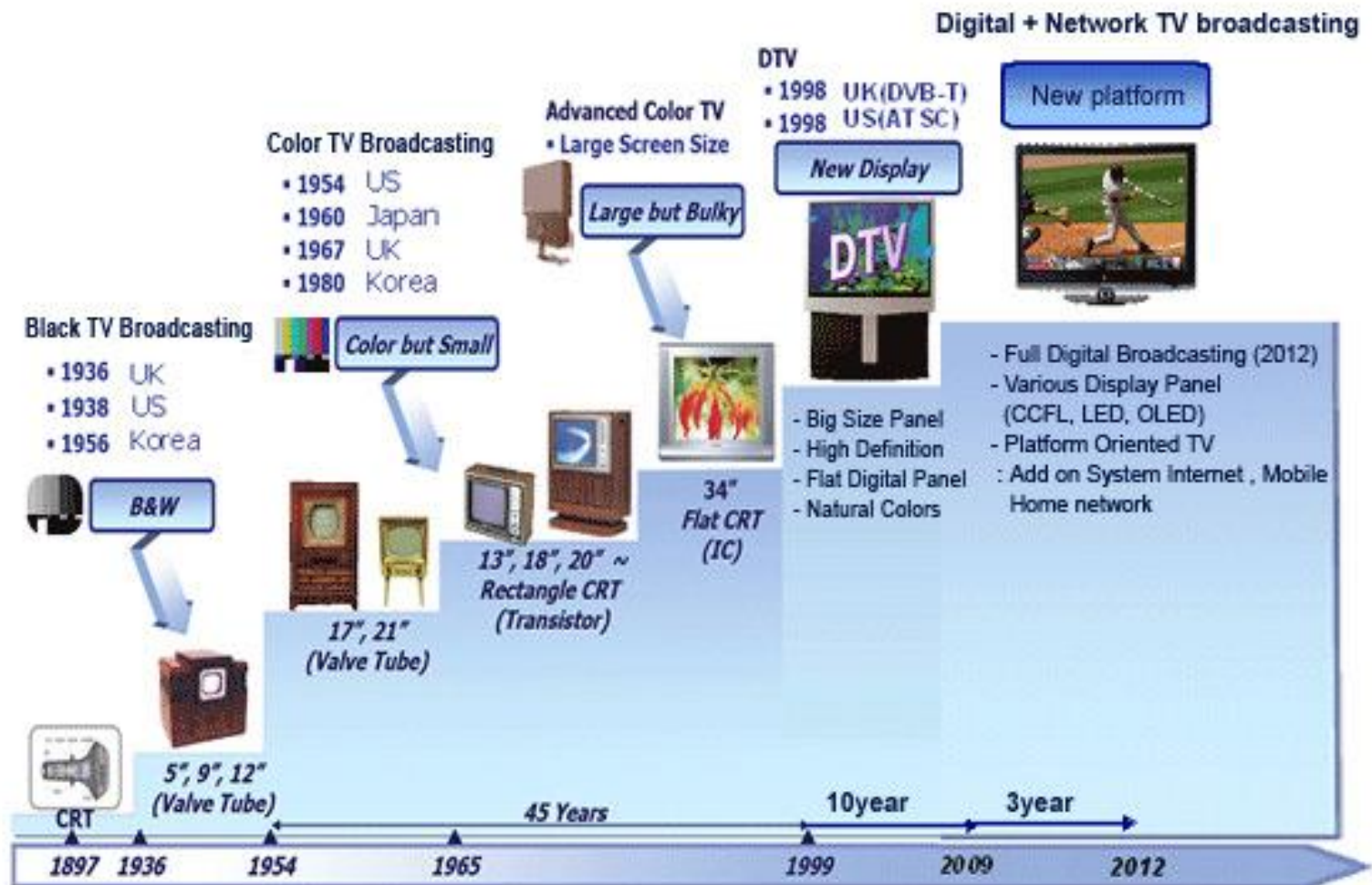| **Current** | **Transition** | **Future** |

Ad hoc processes ———————→ Documented and managed processes

Old operating model ———————→ New operating model

Generalists in the call centre ———————→ Specialists in the call centre

Two different companies ———————→ Merged organisation

Another example

Source:techgeez.com

Why you should care?

- As IT Professionals, your work has implications and impacts beyond your immediate team

- By understanding your customers better and the impacts they face, you will deliver better quality solutions. More skills = more value = more marketability

- Evolution of IT from an 'order taker' to a strategic partner of the business
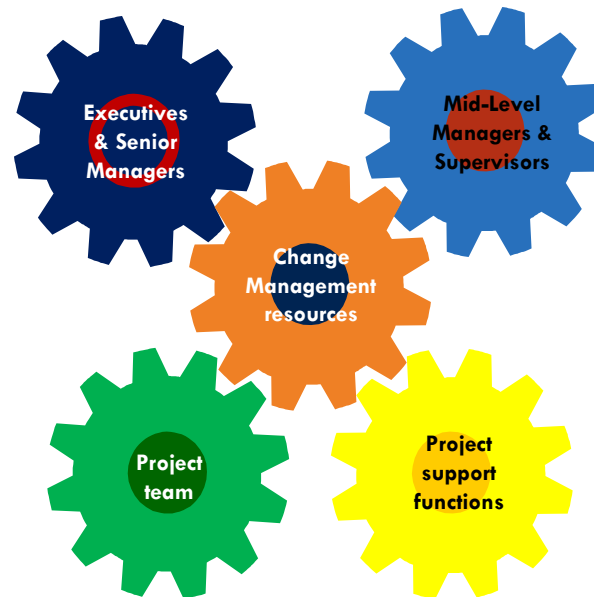
Managing change effectively

Employee-facing:

- **Executives and senior leaders** – These are the decision-makers who sponsor change.

- **Middle managers and supervisors** – They act as coaches, helping their teams adapt.

Enabling:

- **Change management resource or team** – They apply structured approaches to ensure the transition runs smoothly.

- **Project team** – The ones responsible for integrating the change into daily operations.

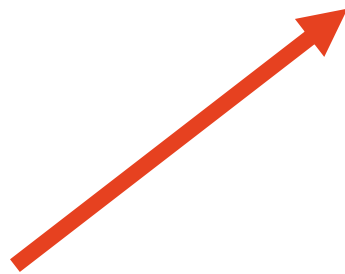- **Support functions** – HR, IT, and other specialists provide expertise.

Executives & Senior Managers

Mid-Level Managers & Supervisors

Change Management resources

Project team

Project support functions

Any examples of Change Management?
What has the impact been ?

(see Menti)

Source: ZdNet
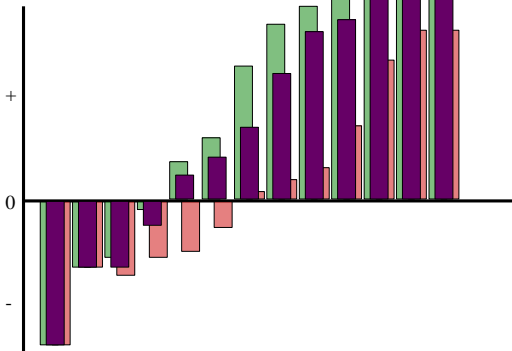
Source: Chicago Tribune

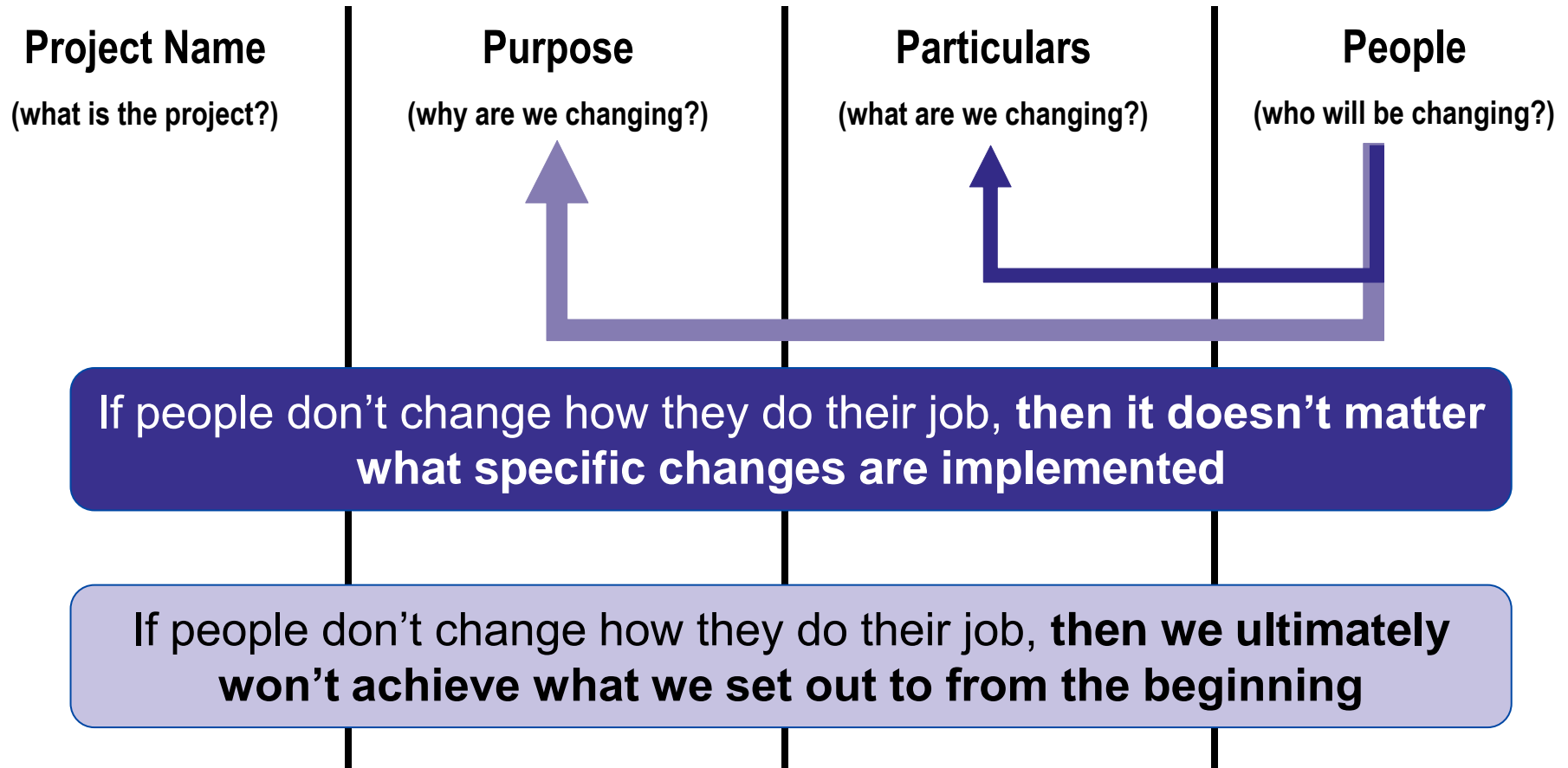# "Why" change management?

Three perspectives to think about…

Correlation of change management effectiveness to meeting project objectives

Percent of respondents that met or exceeded project objectives

95%

80%

51%

16%

Poor (n=111) | Fair (n=259) | Good (n=313) | Excellent (n=65)

Overall effectiveness of change management program

© Prosci. From Prosci's 2009 Best Practices in Change Management benchmarking report
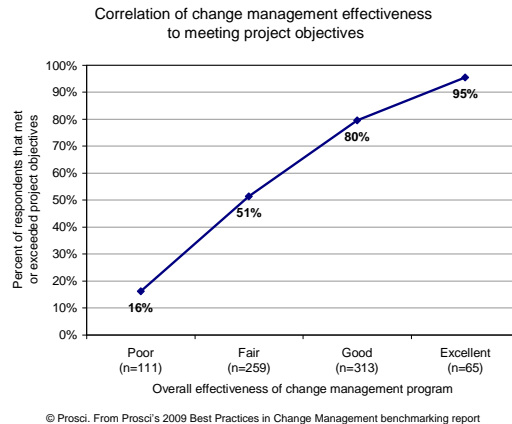
1. **Connecting change management to business results**– Organizations need structured transitions to ensure they meet business objectives.

2. **Mitigating negative consequences–** Employees naturally resist change. Poorly managed transitions lead to confusion and productivity loss.

3. **Financial impact–** A failed change can lead to lost revenue, higher turnover, and wasted investments.

Connecting OCM to business results

Project Name	**Purpose**	**Particulars**	**People**
(what is the project?)	(why are we changing?)	(what are we changing?)	(who will be changing?)

If people don't change how they do their job, **then it doesn't matter what specific changes are implemented**

If people don't change how they do their job, **then we ultimately won't achieve what we set out to from the beginning**

Mitigating negative consequences

With poorly managed change, you can expect a bigger impact that will last longer
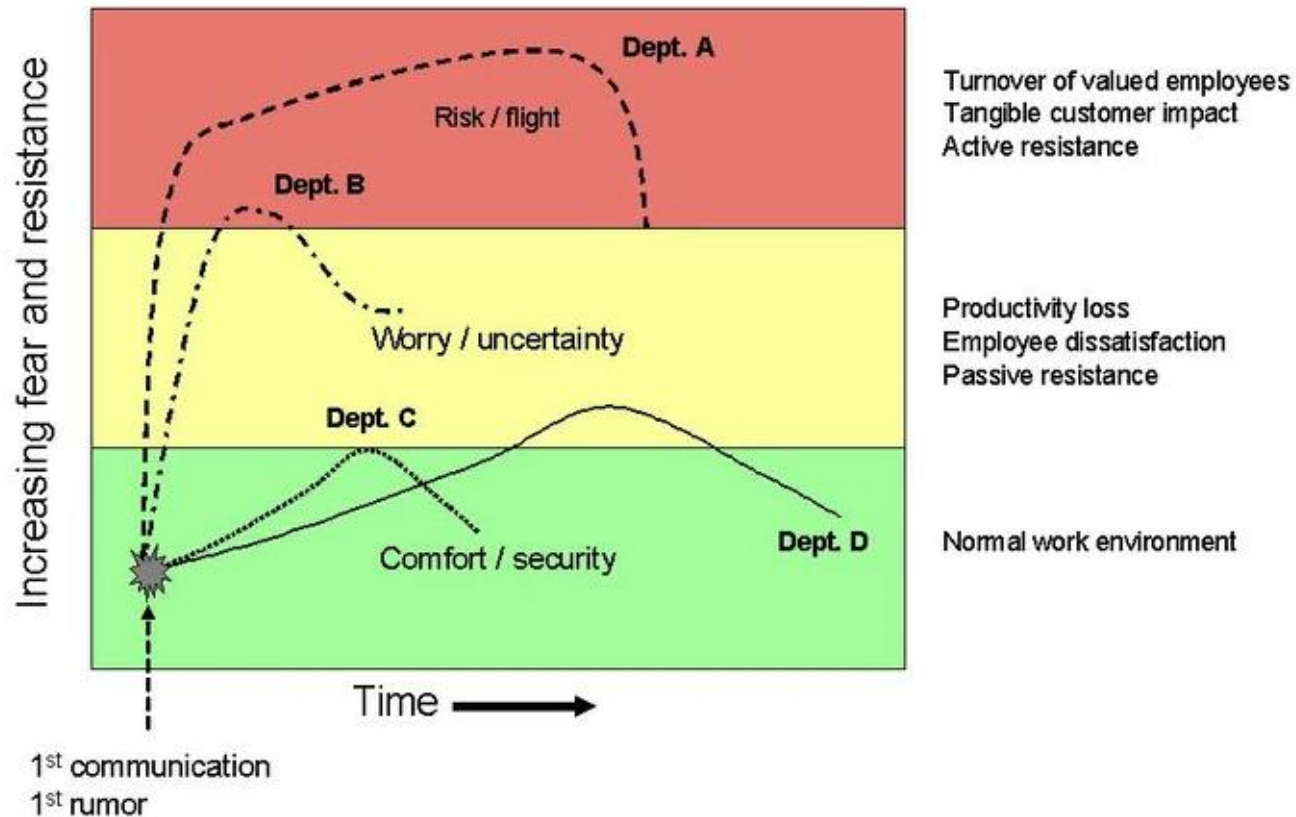
The reality is that change creates instability and introduces risk to the organisation. Multiple changes within the organisation aggravate and compound this risk

The degree of impact will vary by group and depends on the effectiveness of OCM work

With the change, you can expect a decline in productivity and an increase in resistance

Translating OCM to financial performance – human ROI factors

- This "Flight Risk Model" reveals the cost avoidance of OCM:
    - Productivity loss
    - Turnover
    - Customer Impact
- What about the ROI (return on investment) of managing the people side of change?
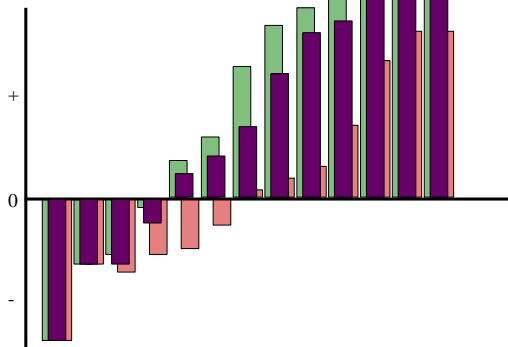
- **Speed of adoption**
    - How quickly are people up and running on the new systems, processes and job roles?
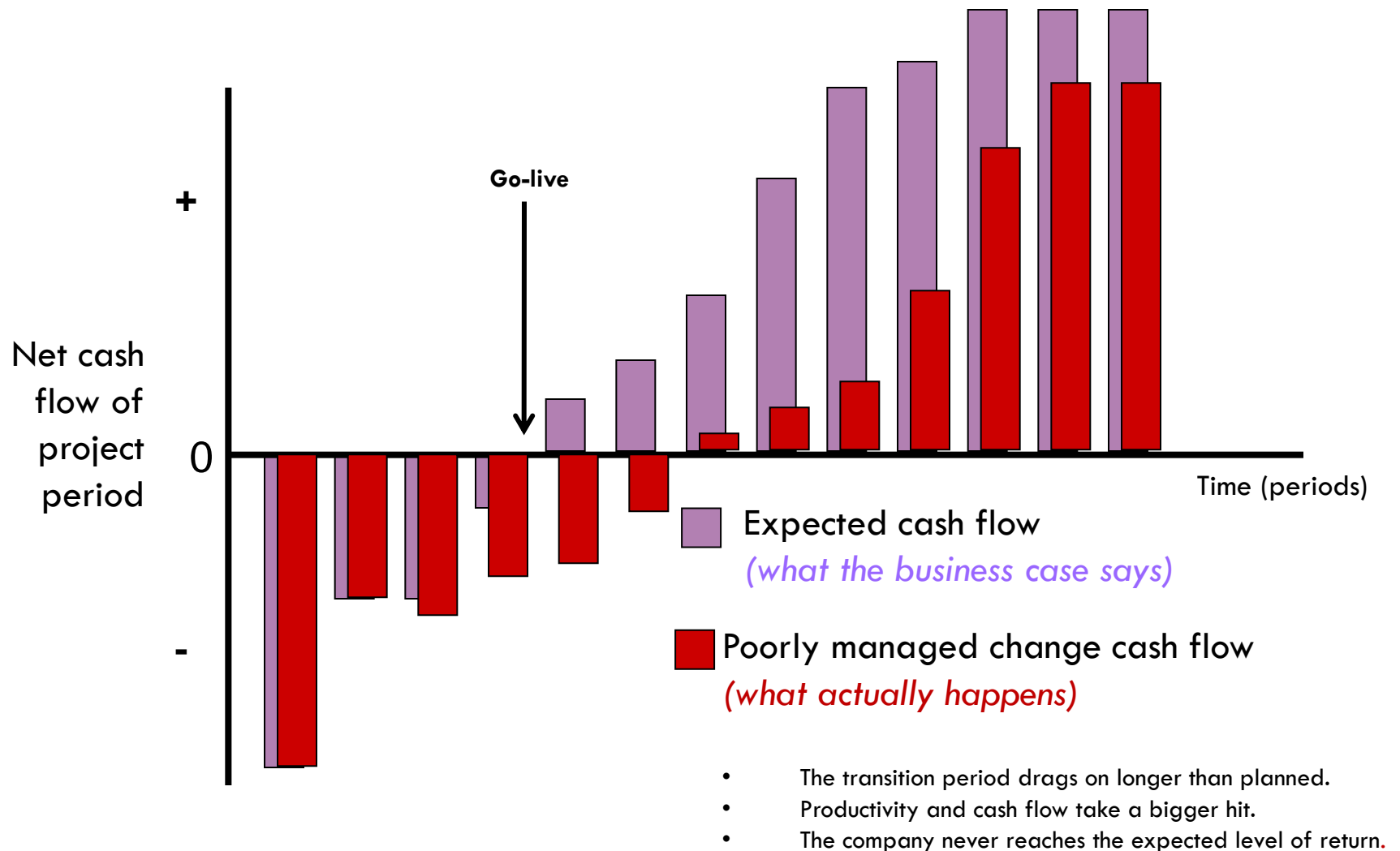
- **Ultimate utilisation**
    - Of the total population, how many employees are demonstrating "buy-in" and are using the new solution?

- **Proficiency**
    - Are individuals performing at the level expected in the design of the change?

Expected returns vs. poorly managed OCM

Net cash flow of project period

Go-live

0

+

-

Time (periods)

Expected cash flow
(what the business case says)

Poorly managed change cash flow
(what actually happens)

- The transition period drags on longer than planned.
- Productivity and cash flow take a bigger hit.
- The company never reaches the expected level of return.

OCM models

A **Change Management Model** provides a structured approach to **planning, implementing, and sustaining change** within an organization. Its primary purpose is to **minimize resistance, reduce disruption**, and **ensure a smooth transition** for employees, processes, and systems.

Key Objectives of a Change Management Model:

– **Reduce Resistance to Change**: Helps employees understand the **need for change**
– **Ensure Smooth Transitions:** Provides clear steps and strategies for transition
– **Minimize Productivity Loss:** Ensures that changes do not disrupt daily operations significantly
– **Improve Employee Adoption & Engagement:** Involves employees early in the process
– **Increase Success Rate of Change Initiatives:** Organizations that follow a structured change model are more likely to achieve the intended business outcomes.
– **Mitigate Risks Associated with Change:** Anticipates potential **challenges, disruptions, or employee turnover,** and develops strategies to address them.

OCM models

– Diverse approaches / Models
  – Focus on business impacts
    • McKinsey 7S
  – Linking of business and people
    • ADKAR
  – Focus on employee responses / needs
    • Kotter
    • Kübler Ross
  – Focus on sequencing
    • Lewin

– Participatory: Design *for* users with their input
– Co-Design: Design *with* users

– Sources
  – https://www.designforsocialchange.org/journal/index.php/DISCERN-J/article/view/3
  – https://www.tandfonline.com/doi/full/10.1080/15710882.2019.1581817#_i6
  – https://www.lucidchart.com/blog/7-fundamental-change-management-models
  – https://www.mindtools.com/aicks4s/the-mckinsey-7-s-framework

McKinsey 7-S Model

– The McKinsey 7-S Model is a framework that helps organizations analyze and improve their performance by looking at seven key elements that must be aligned for success.

– 7-S model in a wide variety of situations

– The model categorizes the seven elements

The ADKAR® Change Model

The five building blocks for successful change

This model provides a structured approach for managing change at both an individual and organizational level. It highlights that change is not just about processes or technology, but also about people adapting to new ways of working.

Awareness
- Of the need to change
- Of the nature of the change

Desire
- To support the change
- To participate and engage

Knowledge
- On how to change
- On how to implement new skills and behaviors

Ability
- To implement the change
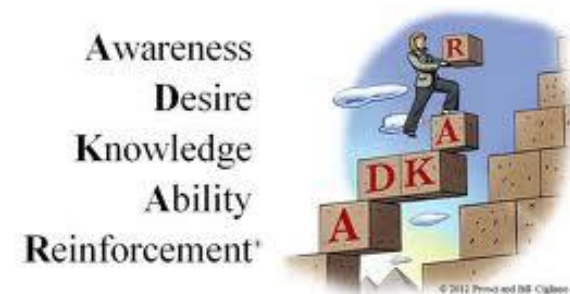- To demonstrate performance

Reinforcement
- To sustain the change
- To build a culture and competence around change

See https://www.prosci.com/adkar/adkar-model

Your change journey…

- Think about a recent change **you** have been involved with

- Can be personal or business related

- Was it a favorable experience (or not) as a result?

The Psychology of Change

Theories and perspectives

1. Change agents must be conscious of both a senders' mentality and the receivers' orientation.

2. Employee resistance is the norm, not the exception. Expect some to never support the change.

3. Visible and active sponsorship is not only desirable but necessary for success.

4. Value systems have a direct impact on how employees react to change.

5. The size of the change determines how much and what kind of change management is needed.

6. The "right" answer is not enough to successfully implement change.

7. Employees go through the change process in stages and go through these stages as individuals.
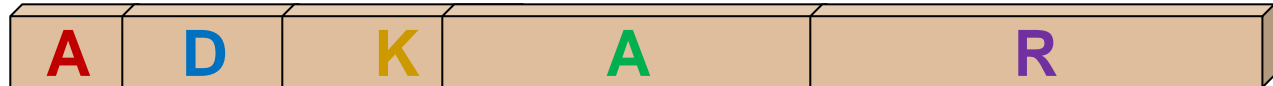
Not everyone changes at the same pace

Person A A D K A R

Person B A D K A R

Person C A D K A R

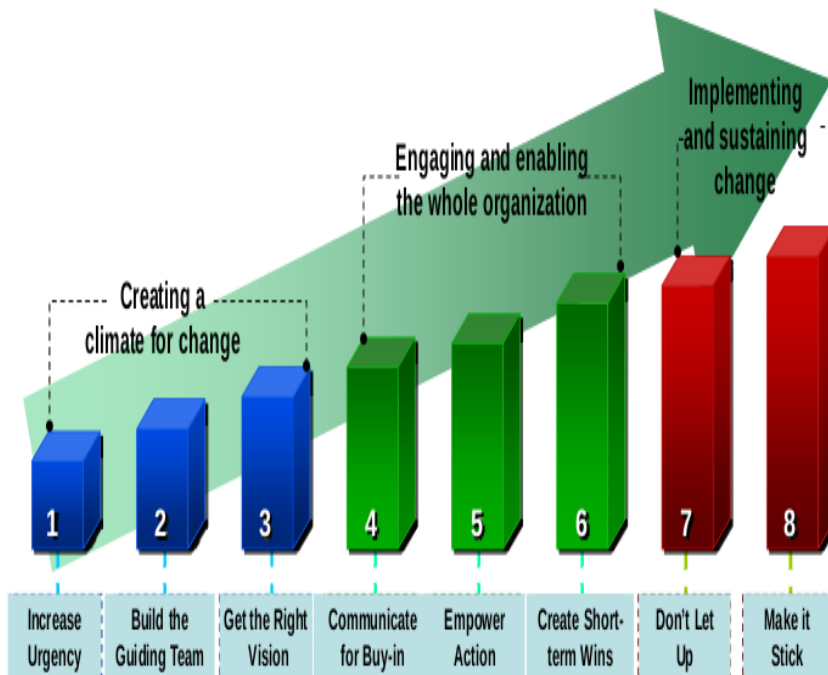**Person D** A D K A R

Person E A D K A R

Person F A D K A R

John Kotter's 8 Step Change Model

This model is widely used because it emphasizes leadership, communication, and continuous reinforcement to make change successful.

⁵ Kotter, John P. and Cohen, Dan S. The Heart of Change. Boston: Harvard Business School Press

1. **Increase Urgency** – Make employees aware of the need for change.

2. **Build a Guiding Team** – Form a leadership group to drive change.

3. **Develop a Vision** – Establish a clear direction for change.

4. **Communicate for Buy-in** – Ensure everyone understands and supports the change.

5. **Empower Action** – Remove obstacles and encourage initiative.

6. **Create Short-Term Wins** – Show early successes to build momentum.

7. **Don't Let Up** – Keep pushing forward, avoiding complacency.
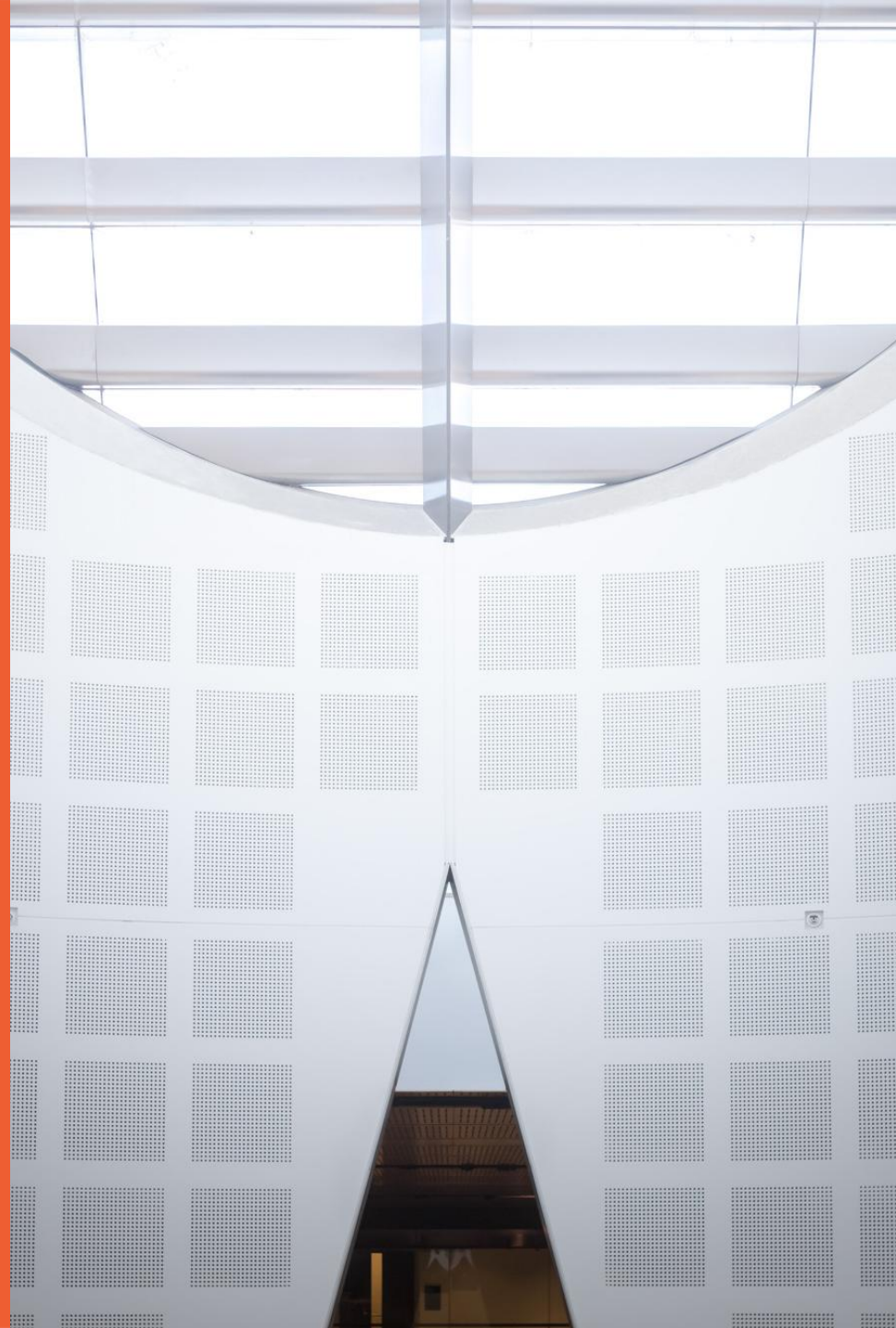
8. **Make It Stick** – Embed the change into company culture.

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Week 4:
Project Success and Failure

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Standish Group's Chaos Report

https://www.projectsmart.co.uk/white-papers/chaos-report.pdf

"71 percent of software projects will be challenged or fail".

"When a bridge falls down, it is investigated and a report is written on the cause of the failure. This is not so in the computer industry where failures are covered up, ignored, and/or rationalised. As a result, we keep making the same mistakes over and over again".

Why do projects fail?

– Case studies (you should explore these…)
  – California DMV
  – FoxMeyer ERP
  – NZ Police INCIS project
  – Sainsbury's warehouse automation
  – Queensland Health payroll
  – Australian Customs cargo service
  – Victorian MyKi public transport smart card

– Why did they "fail"?
– When/Where did they fail?

Why do projects fail?

"Failure is almost never obvious until you're looking in the rearview mirror"

- See https://www.oreilly.com/ideas/the-critical-role-of-systems-thinking-in-software-development
- Borneo sprayed with DDT (Synthetic insecticide) to kill mosquitoes
  - Reduced malaria by killing mosquitoes
  - … but roofs started falling in

Tragedy of Commons

- See https://www.investopedia.com/terms/t/tragedy-of-the-commons.asp

Why did they "fail"?

When/Where did they fail?

Why is this important?

- Case studies (you should explore these…)
  - Therac-25 (1987)
    - Counter issue, along with multiple other causes…
  - Ariane-5 (1997)
    - A $370 million explosion… caused by a single conversion error from 64-bit to 16-bit.
  - HeartBleed (2014)
    - A small buffer overflow vulnerability in OpenSSL led to major security breaches.
  - NorthEast Blackout (2003)
    - Software race condition
  - Denver Airport Baggage Handling (1994)
    - Unclear requirements

- California DMV
- FoxMeyer ERP
- NZ Police INCIS project
- Sainsbury's warehouse automation
- Queensland Health payroll
- Australian Customs cargo service
- Victorian MyKi public transport smart card

  - … and many many more

Case study

- Therac-25
    - Medical radiation therapy machine.
    - Mid-1980's : At least 6 accidents of massive overdose of radiation, and at least 3 deaths.
    - Subsequent commission found:
        - Primary reason: bad software design and development practices
        - Code was not independently reviewed
        - No analysis of possible failure modes
        - Poor documentation of error codes, and ability to override

    - Q: Should the programmers have been held criminally liable? Why?
    - Q: How do you avoid hubris?

    The lesson here is that software is not just code, it has real-world consequences. In safety-critical systems, like healthcare or aviation, testing and fail-safes are essential.

Case Study

– Queensland Health Payroll system
  – Started as a $6.2M contract in 2007
  – Then evolved into a ~$100M contract
  – Ended as a $1.25B failure: Massive Budget Overrun – Due to delays and poor management

  – See
    • https://blog.beyondsoftware.com/the-queensland-health-payroll-fiasco
    • https://www.henricodolfing.com/2019/12/project-failure-case-study-queensland-health.html

  – Why?

    • **Poor project planning** – The scope expanded without proper risk assessment.

    • **Bad vendor management** – The software provider didn't fully understand the government's requirements.

    • **Testing failures** – Payroll is a mission-critical function. Yet, there was insufficient user testing before launch.

What about project success?

– Case Study: M&B - Mitchells & Butlers
  – ~1600 pub/restaurant venues across the UK
  – Diverse systems: supply chain management; labour scheduling; finance systems; property management; …
  – Complex legacy technology

  – Instead of patching the old system, redeveloped the entire IT infrastructure
    • Clarity of vision and intended outcomes
    • Careful migration planning

  – See
    • https://www.cio.com/article/198369/m-b-chains-get-hosted-infrastructure.html
    • https://www.open.edu/openlearn/mod/oucontent/view.php?id=47638&printable=1

Q&A

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