

# **ice-sa NEC Forum**

## **Including Jam Session 5**

**Thursday 13th June 2024**  
**4 pm – 5:30 pm**

**FREE**

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**ONLINE**

**Improving SA Infrastructure  
using NEC Contracts as intended**

**CPD  
Accredited**

**NEC Jam Session 5**

**TOPIC:**  
**Section 4 – Testing &  
Defects (Quality) Risk  
Management**

# 10 NEC Jam Sessions Topics

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## Session 1

Introduction to the NEC3 family of contracts; How it came about, what it tries to do and how it is used; Synopsis of each of the 12 contracts in the family.

## Session 2

Procurement & contract strategies; Parties and role players; Getting the best out of the NEC contract - change of the culture.

## Session 3

Introduction to the sections of Core Clauses & actions in ECC3,  
Section 1 – General.

## Session 4

Section 2 - *Contractor's* main responsibilities,  
Section 3 – Time.

## Session 5

Section 4 - Testing & Defects (Quality),  
Risk Management.

## Session 6

Alignment between contracting Parties,  
Diversity and Inclusion.

## Session 7

Section 5 - Payment, Cost and the Options,  
Section 6 - Change management through compensation.

## Session 8

Section 7 - Title,  
Section 8 - Liabilities and insurance,  
Section 9 - Termination,  
Disputes and Adjudication.

## Session 9

Pre-award documentation & Developing a contract.

## Session 10

NEC3 and NEC4 – the differences.

# Objectives of 10 NEC Jam Sessions

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- Delegates should leave with
  - an understanding of the NEC philosophy, its associated culture change and how it contributes to the effective management of a project;
  - a basic understanding of how to prepare, tender to, and administer the ECC3 (Engineering and Construction Contract)

# Introduction to ECS ice-sa

## Collaborative Project Strategies©

ECS Associates  
Empowered Contract and Project Management Services



[www.ecs.co.za](http://www.ecs.co.za)

## Facts and Values

A leading, fully-empowered organisation.  
35% black woman owned. BBBEE Level1



3 decades of experience in South Africa and overseas

Delivery of international best practice professional contract and project management services from front end studies to implementation

Business solutions through a combination of expert knowledge and hands on experience

Drive clients' success through collaborative, mutually beneficial contract and business management practices

**Collaborative Project Strategies©**  
Agile Project Delivery

Our Founder Andrew Baird was a key member of the drafting committee for NEC 1, 2 & 3

Our associate Peter Higgins is chairman of the drafting committee for NEC4

Network based business model – low overhead cost  
(current staff 100+, network 1000+)

**I**ntegrity

**P**rofessionalism

**C**ollaboration

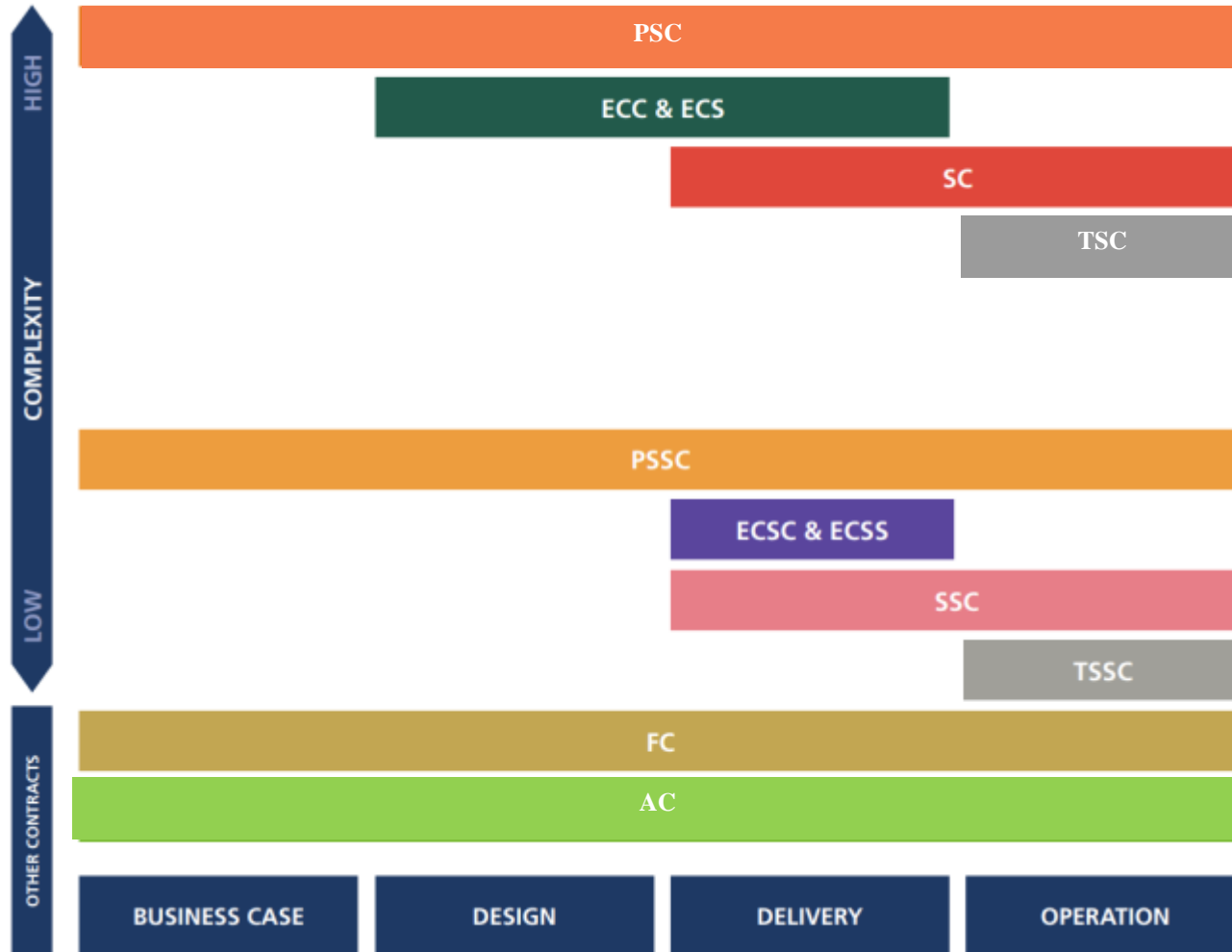
**C**ourage

# Reflection on the previous sessions



- Flexibility
- Clarity and simplicity
- Stimulus to good management
  - The most important objective; every procedure is designed to contribute to rather than detract from the effectiveness for all parties
    - foresight applied collaboratively mitigates problems and shrinks risk
    - clear division of function and responsibility helps accountability and motivates people

# Contracts in NEC3 family <sup>ice-sa</sup>





## Procurement Strategies

- How to split project in smaller components if required?
- Who does Engineering, Procurement and Construction?
- Who is managing interfaces?

## Contract Strategies

- Allocation of risk and incentive
- Choosing the right Options through selection of Main and Secondary Options

**Best practice**: Use the NEC contract with no or minimum changes where required through Z clauses

# NEC is the route to partnering

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## Moving industry culture



Traditional  
Adversarialism

NEC



Mature  
Partnering

- **Section 1 – General**

- |   |                         |
|---|-------------------------|
| • <b>Actions</b>  | <b>Clause 10 (10.1)</b> |
| • <b>Identified and defined terms</b>                         | <b>Clause 11</b>        |
| • <b>Interpretation and the law</b>                           | <b>Clause 12</b>        |
| • <b>Communications</b>                                       | <b>Clause 13</b>        |
| • <b>The <i>Project Manager</i> and the <i>Supervisor</i></b> | <b>Clause 14</b>        |
| • <b>Adding to the Working Areas</b>                          | <b>Clause 15</b>        |
| • <b>Early warning</b>  | <b>Clause 16</b>        |
| • <b>Ambiguities and inconsistencies</b>                      | <b>Clause 17</b>        |
| • <b>Illegal and impossible requirements</b>                  | <b>Clause 18</b>        |
| • <b>Prevention</b>   | <b>Clause 19</b>        |

- **Section 2 - Contractor's main responsibilities**
  - Providing the Works **Clause 20 (20.1)**
  - The Contractor's design **Clause 21**
  - Using the Contractor's design **Clause 22**
  - Design of Equipment **Clause 23**
  - People **Clause 24**
  - Working with the *Employer* and Others **Clause 25**
  - Subcontracting **Clause 26**
  - Other responsibilities **Clause 27**

- **Section 3 – Time**

- |  |           |
|--|-----------|
| • Starting, Completion and Key Dates       | Clause 30 |
| • The programme                            | Clause 31 |
| • Revising the programme                   | Clause 32 |
| • Access to and use of the Site            | Clause 33 |
| • Instruction to stop or not to start work | Clause 34 |
| • Take over                                | Clause 35 |
| • Acceleration                             | Clause 36 |

## NEC Jam session 5

Introduction to the sections of Core Clauses & actions in ECC3

- Section 4 - Testing & Defects (Quality),
- Risk Management

# Section 4

## Testing & Defects (Quality)



# A Defect is

- 11.2 (5) A Defect is
  - A part of the *works* which is not in accordance with the Works Information or
  - A part of the works designed by the *Contractor* which is not in accordance with the applicable law or the *Contractor's* design which the *Project Manager* has accepted
- Significance again for the quality of the *Employer's Works Information*

- Needs to be built into design and specifications; non-compliance then a Defect
- Quality Assurance systems should be specified in the Works Information
- Tender Schedules may ask for the *Contractor's* proposal for Quality Assurance; then include it in the Works Information by the *Contractor* to make an obligation

# Lessons Learned No.7

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**Make sure that engineers visit the site!**  
**Break down “us and them” silos between the office and site...**

- The *Contractor's* responsibility for quality is part of his duty to Provide the Works
- Quality standards specified in the Works Information
- Quality management system & procedures also in the Works Information
  - supplied by the *Employer* as part of an integrated project scheme
  - supplied by the *Contractor* as requested

# Tests and Inspections ..

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- tests specified in the Works Information
  - nature, when, where, who & materials
- timing stated in the Works Information
  - before payment & marking, before delivery, or Completion, or after take-over but before the *defects date* as part of a commissioning programme.
- requirements to notify in clauses 40.3 & 43.1

# Testing and Defects

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First establish responsibility for the Defect

40.6 The *Contractor* pays the *Employer's* retest costs

42.1 The *Supervisor* may instruct the *Contractor* to search for a Defect; is a compensation event if no Defect found

42.2 The *Supervisor* & the *Contractor* each notify the other of Defects until the *defects date*

## 43.1 The Contractor corrects Defects even if the Supervisor does not notify

- Notify defects at any time between *starting date* and *defects date* but fix them within the *defect correction period* after Completion
- extend *defect correction period* or fix by others at the Contractor's cost

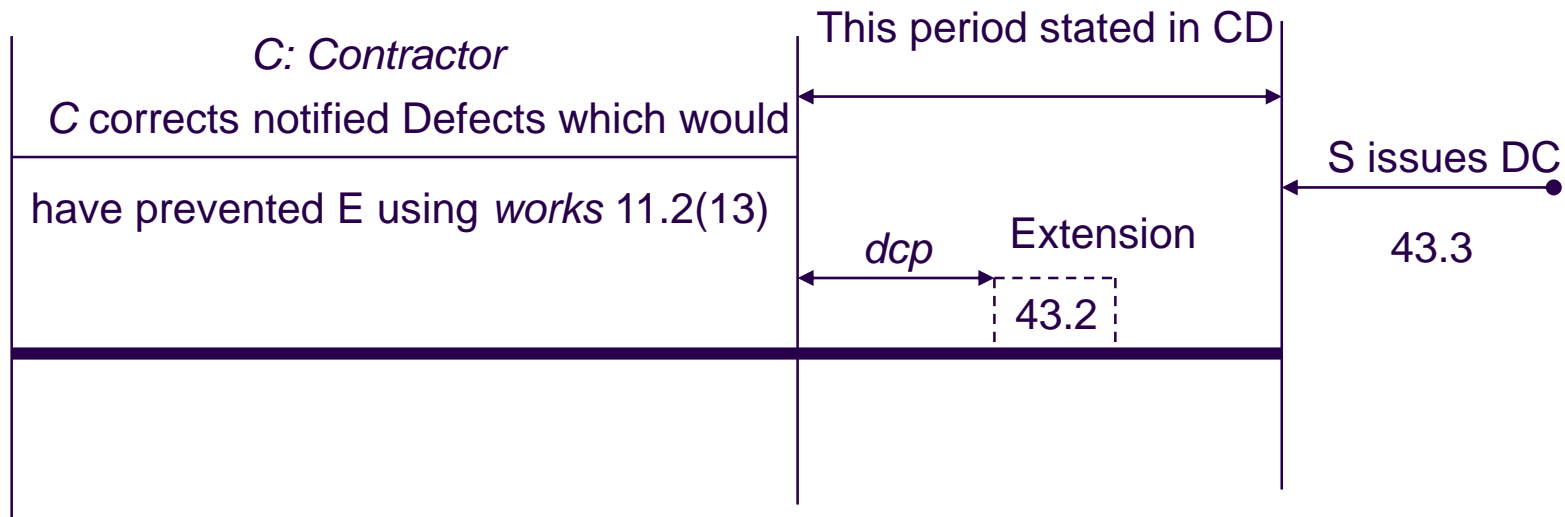


# Defects found before Completion

Starting  
date

Completion of  
whole of works

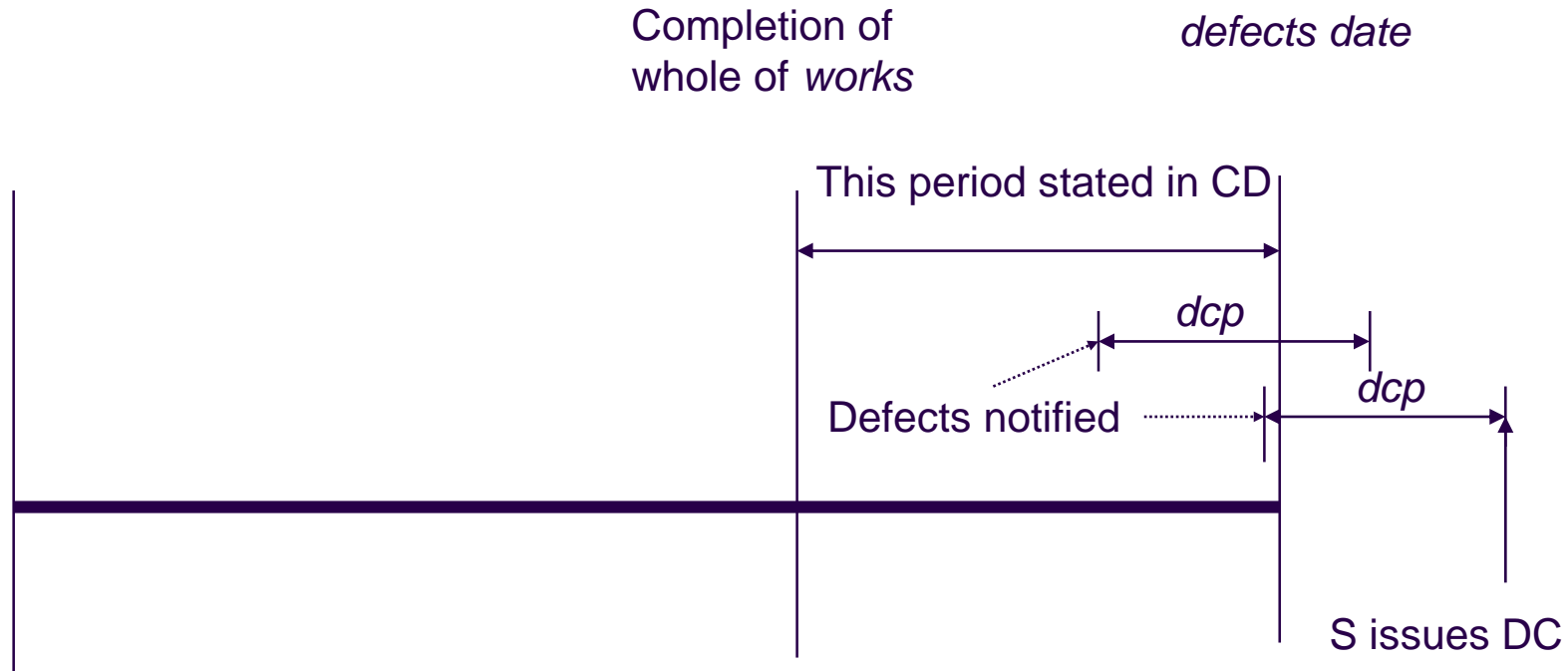
defects date



*PM Project Manager, CD Contract Data; DC Defects Certificate; dcp defect correction period*

If Defect not corrected within *dcp*, *PM* assesses cost of correction by others & paid by *C* unless extension is agreed under Clause 43.2

# Defects notified by the **Supervisor (S)** **ice-sa** after Completion & before defects date



*PM Project Manager, CD Contract Data; DC Defects Certificate; dcp defect correction period*

If Defect not corrected within *dcp*, *PM* assesses cost of correction by others & paid by *C* unless extension is agreed under Clause 43.2

# Defect found after *defects date*

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*defects date*

*C: Contractor*

Defect found

C's liability  
depends on law

# Maintenance / warranty (not NEC terms) period

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- traditional terms not used; warranty requirements implied by 20.1, 42.2, 43.1

43.3 The *Supervisor* issues Defects Certificate at the later of the *defects date* or the end of the last *defect correction period*

- states that there are none or lists remainder
- probably the last contractual communication

# Accepting Defects

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The *Project Manager* can demand performance or accept Defects

44.1 If the *Project Manager* and the *Contractor* agree, Defects can be accepted for a reduced Price and earlier Completion Date, or

45.1 Defect can be corrected by others at the *Contractor's* cost if not corrected within its *defect correction period* .

45.2 If the *Employer* does not give access to correct, the *Project Manager* assesses cost to the *Contractor* who pays amount

- The *Contractor* has unlimited liability to correct Defects (unless clause 44 used) right up to *defects date*
- Use X17 for low performance damages
- After *defects date*, liability for 'latent' defects is forever in RSA law
- Can be limited using Option X18 to an amount for a period of time with an *end of liability date*

# Risk Management



# Traditional project phases...ice-sa

**1**  
**Excitement & Euphoria**



**2**  
**Disenchantment**



**3**  
**Search for the Guilty**



**4**  
**Punishment of the Innocent**



**5**  
**Distinction for the Uninvolved**



*“There are known knowns; there are things we know we know.  
We also know there are known unknowns; that is to say we know there  
are some things we do not know.  
But there are also unknown unknowns – there are things we do not  
know we don't know.”*

Former United States Secretary of Defence Donald Rumsfeld

# Options in Risk Management

## 1. Contractual Allocation of Risks:

Allocate a risk to a Party in the contract which is best placed to manage it taking in account cost impact thereof! (e.g. unforeseen circumstances, delays, cost overruns, quality issues etc. using mechanisms such as force majeure clauses, indemnity clauses and limitation of liability clauses.). Agree dispute resolution mechanism to prevent major costs and delays!

## 2. Insurance:

Define which Party takes out insurance for which event. Please note liabilities for insurance excess and limitations!!! (e.g., general liability to the property, *works*, Plant and Material, loss and damage to Equipment, professional indemnity, construction all-risk insurance, liability for death or bodily injury of respective employees)

## 3. Performance Bonds and Guarantees:

Contractors and subcontractors to provide financial instruments to ensure compensation and facilitate the completion of the project in case of non-performance or breaches of contract. What about the security of payment by the *Employer*?

## 4. Risk Mitigation through Project Management:

- Risk identification and mitigation before they occur (early warnings).
- Change management when risks occur.
- Manage time, cost and quality using best tools and lessons learned.

## 5. Allocate contingencies for risks

For both cost and time! Who owns contingencies? How are they managed and released?

# Risk Management Options

## Step 1 (Trigger!)

Choose Risk Management  
Approach

Consequence 1  
Drivers/ Incentives

## Avoid Risk

Traditional (Rigid) contract  
High level liabilities  
Lack of alignment  
Do not lose money!  
Manage the contract

## Manage Risk

Full alignment  
Long term relationship  
focused  
Shared risk and reward –  
no finger pointing  
Development, learning and  
improvement  
Manage the project

# Risk Management Options

## Step 1 (Trigger!)

Choose Risk Management Approach

Consequence 1  
Drivers/ Incentives

Consequence 2  
Values

## Avoid Risk

Traditional (Rigid) contract  
High level liabilities  
Lack of alignment  
Do not lose money!  
Manage the contract

Blame  
Short-term focus  
Confusion  
Hierarchy  
Bureaucracy

## Manage Risk

Full alignment  
Long term relationship focused  
Shared risk and reward – no finger pointing  
Development, learning and improvement  
Manage the project

Commitment  
Accountability  
Integrity  
Caring  
Creativity / Resourcefulness  
Performance

# Risk Management Options

## Step 1 (Trigger!)

Choose Risk Management Approach

Consequence 1  
Drivers/ Incentives

Consequence 2  
Values

Consequence 3  
Outcome

## Avoid Risk

Traditional (Rigid) contract  
High level liabilities  
Lack of alignment  
Do not lose money!  
Manage the contract

Blame  
Short-term focus  
Confusion  
Hierarchy  
Bureaucracy

1. lose-lose
2. win-lose
3. lose-win
4. unlikely win-win

## Manage Risk

Full alignment  
Long term relationship focused  
Shared risk and reward – no finger pointing  
Development, learning and improvement  
Manage the project

Commitment  
Accountability  
Integrity  
Caring  
Creativity / Resourcefulness  
Performance

1. win-win
2. -
3. -
4. unlikely lose-lose

# Johari Windows of knowledge

**Limited Understanding**

Known to Client and Contractor	Known only to Client
Known only to Contractor	Unknown

vs.

**Enhanced Understanding**

Known to Client and Contractor	Known only to Client
Known only to Contractor	Unknown

**Less Unknown = Less Risks!!!**



# How ECC3 deals with Risk Management? ice-sa

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- Allocation of risks through main and secondary options
- *Employer's* risks are listed in Section 8 and additional compensation events may be listed in Contract Data part 1
- Clause 81.1 states that until the *defects date* the risks not carried by the *Employer* are carried by the *Contractor*
- Role of the Risk Register
- Early warning process and links in the contract
- When the contract is used as intended, the risks are managed collaboratively

# How ECC3 deals with ice-sa Risk Management?

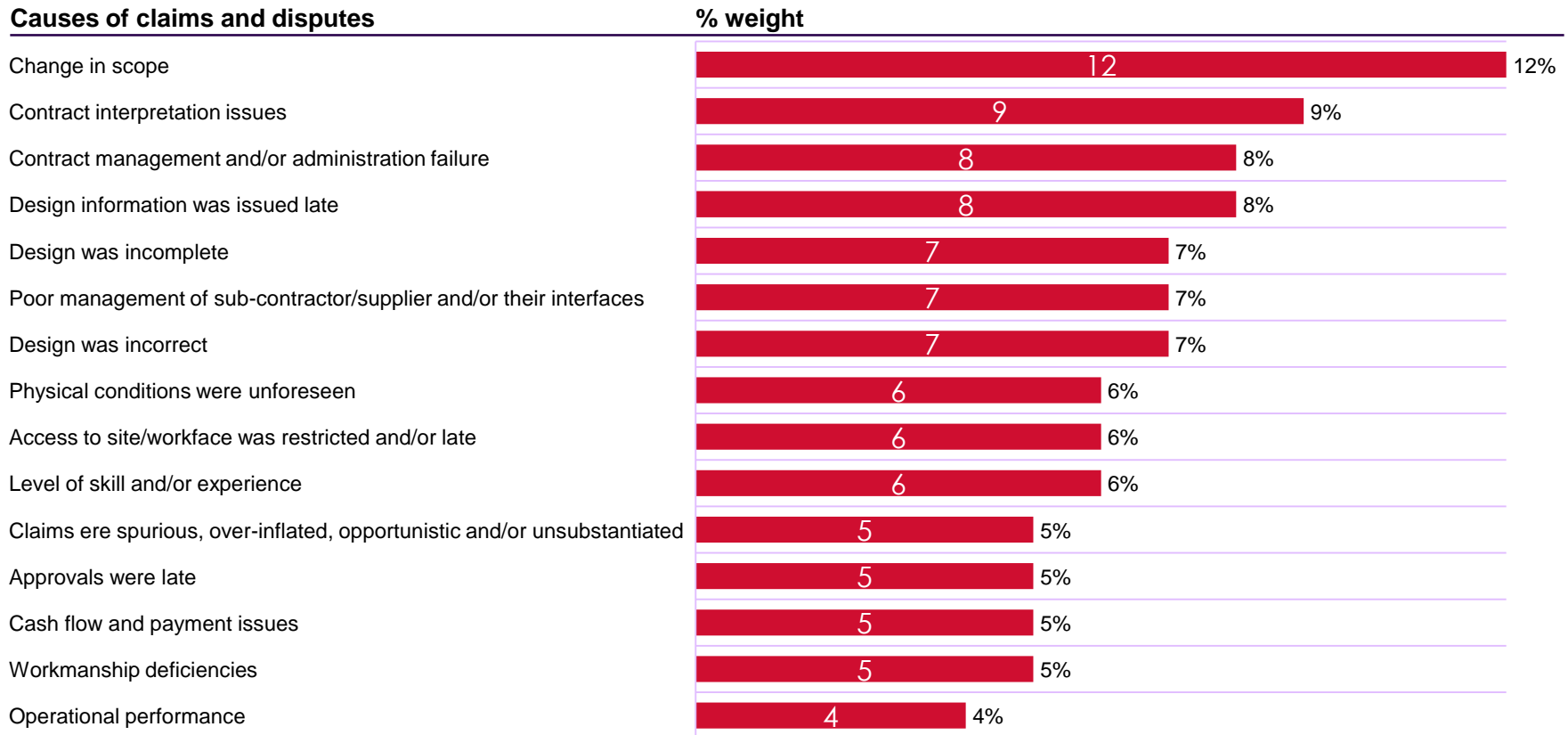
- The Risk Register should be generated from the tender process
- Early warnings are then added to the Risk Register – the Risk Register becomes a dynamic management tool
- The *Project Manager* is custodian of the Risk Register and should facilitate the risk reduction process
- Both parties are incentivised to notify early warnings
- What are compensation events? And the compensation event process needs to be understood and implemented

**Risks identified in Contract Data parts 1 and 2 (headed ‘matters to be included in the Risk Register’) do not change the risk allocation – their purpose is to support post-contract risk management!!!**

# Why projects fail?

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## Global top causes of claims and disputes for engineering construction projects



# The end of NEC Jam Session 5



# Next NEC Jam Session

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## Session 6

- Alignment between contracting Parties,
- Diversity and Inclusion

**Thank you for your  
participation**

**Feedback is welcome**

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