



source allies



How to do DevOps from scratch to prod



ABOUT ME



Paul Rowe

- Full stack software engineer working across a broad range of tech.
- Extensive experience in AWS, Azure and GCP
- Teaches organizations and teams to build better software faster.
- Fun fact: Loves to talk about API strategy.

SOURCE ALLIES

- IT Consultancy. Insurance, AgriTech, Energy, FinTech. Builders Who Teach. Engineers (Data, AI/ML/LLM, Software, Cloud, DevOps).
- 2 Decades of Dev + Ops.
- Simplest Architecture / Right solution, right time

20+
YEARS





AGENDA



OUR
SERVICE



DEPLOYMENT



VALIDATION



DEV
PROCESS



Q & A



OUR SERVICE

```
export async function handler(event) {
  console.log(`got event ${JSON.stringify(event)}`);
  return {
    message: "Hello World",
  };
}
```



DEFINE OUR INFRASTRUCTURE

```
# template.yml
AWSTemplateFormatVersion : "2010-09-09"
Transform: AWS::Serverless-2016-10-31
Resources:
  HelloWorldLambda:
    Type: AWS::Serverless::Function
    Properties:
      CodeUri: .
      Handler: hello-world/hello-world.handler
      Runtime: nodejs20.x
      FunctionUrlConfig:
        AuthType: NONE

Outputs:
  HelloWorldUrl:
    Value: !GetAtt HelloWorldLambdaUrl.FunctionUrl
```



DEPLOYING OUR APP

```
# samconfig.yml
version: 0.1
default:
deploy:
parameters:
  resolve_s3: true
  stack_name: dev-ops-dsm
  fail_on_empty_changeset: false
capabilities:
  - CAPABILITY_IAM
```



DEPLOYING OUR APP

```
% sam deploy
```

```
Managed S3 bucket: aws-sam-cli-managed-default-samclisourcebucket-usrgol8npaze
A different default S3 bucket can be set in samconfig.toml
Or by specifying --s3-bucket explicitly.
```

```
Uploading to 01b2d0989a8fcb6675b4cc0f137abaa5 17625801 / 17625801 (100.00%)
```

```
Deploying with following values
```

```
=====
Stack name           : dev-ops-dsm
Region              : us-east-1
Confirm changeset   : False
Disable rollback     : False
Deployment s3 bucket : aws-sam-cli-managed-default-samclisourcebucket-usrgol8npaze
Capabilities        : ["CAPABILITY_IAM"]
Parameter overrides  : {}
Signing Profiles     : {}
```

```
Initiating deployment
```

```
=====
```

```
Uploading to 030e7b7e413dedbdc937942a1b9948c2.template 549 / 549 (100.00%)
```



DEPLOYING OUR APP (2)

Waiting for changeset to be created..

CloudFormation stack changeset

Operation	LogicalResourceId	ResourceType	Replacement
+ Add	HelloWorldLambdaRole	AWS::IAM::Role	N/A
+ Add	HelloWorldLambdaUrlPublicP ermissions	AWS::Lambda::Permission	N/A
+ Add	HelloWorldLambdaUrl	AWS::Lambda::Url	N/A
+ Add	HelloWorldLambda	AWS::Lambda::Function	N/A

Changeset created successfully.

arn:aws:cloudformation:us-east-1:248189918900:changeSet/samcli-deploy1727796760/9a176b26-77ab-49fe-b976-759d91081dbd



DEPLOYING OUR APP (3)

2024-10-01 10:32:46 - Waiting for stack create/update to complete

CloudFormation events from stack operations (refresh every 5.0 seconds)

ResourceStatus	ResourceType	LogicalResourceId	ResourceStatusReason
CREATE_IN_PROGRESS	AWS::CloudFormation::Stack	dev-ops-dsm	User Initiated
CREATE_IN_PROGRESS	AWS::IAM::Role	HelloWorldLambdaRole	-
...			
...			
...			
CREATE_COMPLETE	AWS::Lambda::Url	HelloWorldLambdaUrl	-
CREATE_COMPLETE	AWS::Lambda::Permission	HelloWorldLambdaUrlPublicPermissions	-
CREATE_COMPLETE	AWS::Lambda::Function	HelloWorldLambda	-
CREATE_COMPLETE	AWS::CloudFormation::Stack	dev-ops-dsm	-



A HOME TO RUN OUR PIPELINE

The screenshot shows a GitHub repository interface for the repository `sourceallies / devops-dsm-2024-talk`. The navigation bar at the top includes links for Code, Issues, Pull requests, Actions (which is the active tab), Projects, Security, Insights, and Settings. The main content area is titled "Actions" and features a "New workflow" button. A sidebar on the left shows a "All workflows" button. The main content area displays the heading "All workflows" and the subtext "Showing runs from all workflows".



BASIC PIPELINE / WORKFLOW

```
# /.github/workflows/main.yml
name: "Main Pipeline"
on:
  push:
    branches:
      - main

jobs:
  deploy-prod:
    runs-on: ubuntu-latest
    steps:
      - name: Checkout
        uses: actions/checkout@v4

      - name: install
        run: echo "Hello build"
```



BASIC PIPELINE / WORKFLOW (2)

← Main Pipeline

✓ testing main pipeline #14

Summary

Triggered via push 1 minute ago	Status	Total duration	Artifacts
prowe pushed -o 9d4f514 main	Success	14s	-

Jobs

- ✓ **deploy-dev**

Run details

Usage

Workflow file

main.yml
on: push

✓ deploy-dev 2s



BASIC PIPELINE / WORKFLOW (3)

← Main Pipeline

✓ testing deploy job #26

Summary

Jobs

✓ deploy-prod

Run details

⌚ Usage

⤷ Workflow file

Triggered via push 3 minutes ago

prowe pushed -o- 836aea7 main

Status Success

main.yml

on: push

✓ deploy-prod 41s



ACCESS TO OUR ACCOUNT

AssumeRoleWithWebIdentity

[PDF](#)

Returns a set of temporary security credentials for users who have been authenticated in a mobile or web application with a web identity provider. Example providers include the OAuth 2.0 providers Login with Amazon and Facebook, or any OpenID Connect-compatible identity provider such as Google or [Amazon Cognito federated identities](#).

Automatic token authentication

GitHub provides a token that you can use to authenticate on behalf of GitHub Actions.

About the `GITHUB_TOKEN` secret edit

At the start of each workflow job, GitHub automatically creates a unique `GITHUB_TOKEN` secret to use in your workflow. You can use the `GITHUB_TOKEN` to authenticate in the workflow job.



ACCESS TO OUR ACCOUNT (2)

GitHubOidcProvider :

Type: AWS::IAM::OIDCProvider

Properties:

Url: <https://token.actions.githubusercontent.com>

ClientIdList:

- sts.amazonaws.com

ThumbprintList:

- 6938fd4d98bab03faadb97b34396831e3780aea1

- 1c58a3a8518e8759bf075b76b750d4f2df264fcd



ACCESS TO OUR ACCOUNT (3)

```
DeployerRole:  
  Type: AWS::IAM::Role  
  Properties:  
    RoleName: Deployer  
    ManagedPolicyArns:  
      - arn:aws:iam::aws:policy/AdministratorAccess  
  AssumeRolePolicyDocument:  
    Version: "2012-10-17"  
    Statement:  
      - Effect: Allow  
        Action:  
          - sts:AssumeRoleWithWebIdentity  
    Principal:  
      Federated: !Ref GitHubOidcProvider  
    Condition:  
      StringLike:  
        token.actions.githubusercontent.com:sub : >-  
          repo:sourceallies/devops-dsm-2024-talk:*
```



ACCESS TO OUR ACCOUNT

```
deploy-prod:  
  runs-on: ubuntu-latest  
  permissions:  
    id-token: write  
    contents: read  
  steps:  
    - name: Checkout  
      uses: actions/checkout@v3  
  
    - name: Configure AWS Credentials  
      uses: aws-actions/configure-aws-credentials@v2  
      with:  
        aws-region: us-east-1  
        role-to-assume: "arn:aws:iam::248189918900:role/Deployer"  
        role-session-name: Deploy
```



ACCESS TO OUR ACCOUNT

```
...
  - uses: aws-actions/setup-sam@v2
    with:
      use-installer: true

  - name: Build Stack
    run: sam build

  - name: Deploy Stack
    run: sam deploy
```



ACCESS TO OUR ACCOUNT

deploy-prod

succeeded 3 minutes ago in 41s

- > Set up job
- > Checkout
- > Configure AWS Credentials
- > Run aws-actions/setup-sam@v2
- > Build Stack
- < Deploy Stack

```
1 ► Run sam deploy
10
11           Managed S3 bucket: aws-
12           A different default S3
```

```
68 Key          HelloWorldUrl
69 Description   -
70 Value         https://ajd6z2vgyvllulholbpqsg7jzu0rejgv.lambda-url.us-
71 --
72
73
74 Successfully created/updated stack - dev-ops-dsm in us-east-1
75
```



ENSURING CORRECTNESS

```
jobs:  
  run-tests:  
    runs-on: ubuntu-latest  
    steps:  
      - name: Checkout  
        uses: actions/checkout@v4  
  
      - name: install  
        run: npm ci  
  
      - name: test  
        run: npm run test  
  deploy-dev:
```



ENSURING CORRECTNESS

```
jobs:  
  check-format:  
    runs-on: ubuntu-latest  
    steps:  
      - name: Checkout  
        uses: actions/checkout@v4  
  
      - name: install  
        run: npm ci  
  
      - name: format  
        run: npm run check-format  
  
  run-tests:
```



ENSURING CORRECTNESS

```
deploy-prod:  
  runs-on: ubuntu-latest  
  needs:  
    - check-format  
    - run-tests
```



ENSURING CORRECTNESS

main.yml

on: push

✓ check-format

✓ run-tests

7s

4s

✓ deploy-prod

41s





PULL REQUEST SUPPORT

```
on:  
  push:  
    branches:  
      - main  
  pull request:  
    branches:  
      - main
```



PULL REQUEST SUPPORT

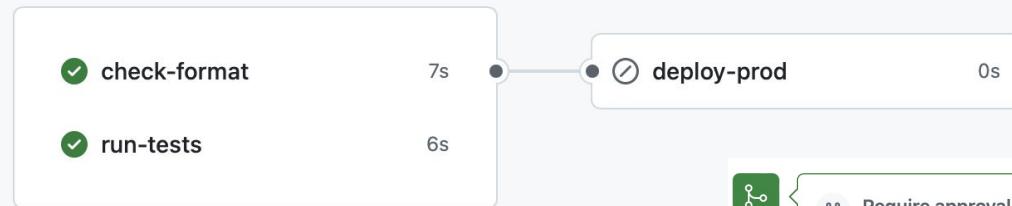
```
on:  
  push:  
    branches:  
      - main  
  pull request:  
    branches:  
      - main  
  
deploy-prod:  
  if: ${{ github.ref_name == 'main' }}
```



PULL REQUEST SUPPORT

main.yml

on: pull_request



Require approval from specific reviewers before merging
[Rulesets](#) ensure specific people approve pull requests before they're merged.

Add rule x

All checks have passed
2 successful and 1 skipped checks

Details

Main Pipeline / check-format (pull_request) Successful in 7s

Details

Main Pipeline / run-tests (pull_request) Successful in 6s

Details

Main Pipeline / deploy-prod (pull_request) Skipped

Details

This branch has no conflicts with the base branch
Merging can be performed automatically.

Merge pull request You can also [open this in GitHub Desktop](#) or view [command line instructions](#).



MULTIPLE ENVIRONMENTS

What about multiple environments (ex. Dev, Test, Prod)?

- Chain them together with `needs: ["deploy-dev"]`
- A series of steps (or a job) can be extracted into a file and referenced repeatedly
- What if manual approvals are needed between deploys
 - Downsides of this strategy
 - Github “Environments” allow gating & controlling releases
 - Highly regulated projects may need additional controls



Questions?
I might have answers

Visit Our Table





TOPIC NAME HERE

PHOTO GOES HERE, BEHIND THE
WHITE SLANT
4" X 5"

SUB HEAD GOES HERE

Information goes here.



Image goes here 4" x 4"

Image should be behind the text boxes

SUB HEAD GOES HERE

Information goes here.

IMAGE DESCRIPTION TEXT



“ A QUOTE CAN BE PLACED INSIDE THIS BOX HERE. THE QUOTE CAN BE SEVERAL SENTENCES LONG IF NECESSARY. ”



CORE VALUES



BE AN OWNER

Information goes here.
Dark Blue color for
text - 1.15 spacing
between lines. Lorem
ipsum dolor sit amet,
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BE A LEADER

Information goes here.
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BE A TEACHER

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BE AN EXPERT

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AGENDA



AGENDA
ITEM 1



AGENDA
ITEM 2



AGENDA
ITEM 3



AGENDA
ITEM 4



AGENDA
ITEM 4



OUR AREAS OF EXPERTISE



SOFTWARE DEVELOPMENT

Architect and build custom web, mobile and desktop solutions.



QUALITY ENGINEERING

Integrate tests into every step of the development process



DEVOPS/ CLOUD

Increase continuous delivery speed and reducing ownership costs



USER EXPERIENCE

Create user focused designs through research and analysis



DATA ANALYTICS

Leverage data to inform business decisions and streamline processes

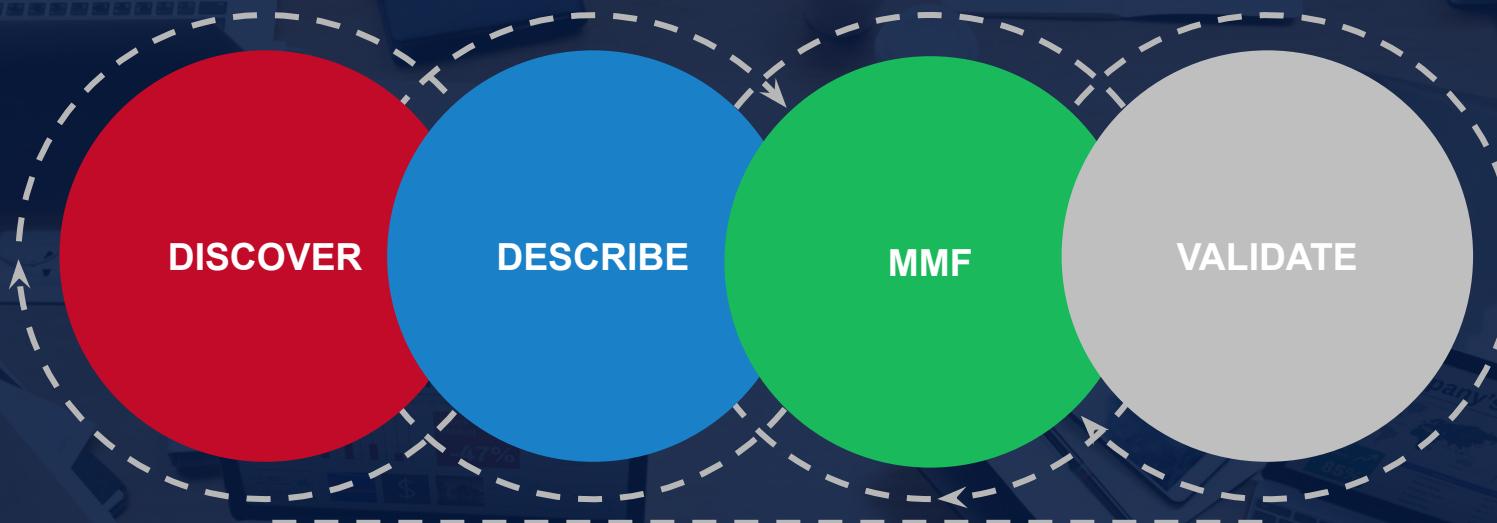


DELIVERY LEADERSHIP

Manages the project and supports the team and business



PROCESS



Learn about people and context of the problem

Combine learnings from discovery phase via story mapping

Test-drive minimum marketable features

Validate and test with users

TIMELINE

JANUARY

MARCH

JULY

SEPTEMBER

NOVEMBER



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TIMELINE



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HEADLINE



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Subheader

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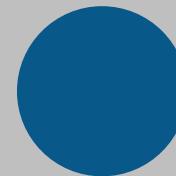


HEADLINE

COLOR PALETTE



These five colors are the primary colors that should be used.
Avoid putting the red and green next to each other.



This navy should be
used when the SA
Navy is too dark.



These two colors should
only be used to avoid
repeating one of the
primary colors and never
used alone.

The dark blue is the only color that
should be used as an overlay color
when photography is used in the
background.

COLOR PALETTE

1. The main background color for the website. Also the headline color and body copy text color.
1A. When our navy blue is too dark for a print piece.
2. Background accent color, icons and header & footer of the website.
3. Button color and the rule under the main header images on the website.
4. Accent color - mostly shows up in images. Used very sparingly.
5. For body copy over a background color or overlapping an image.
6. When using as a background accent, used at an opacity of 90%
7. Secondary colors to be used sparingly as accent colors only when you have more than four elements and don't want to repeat the four main colors.



ACCESSIBILITY - COLOR CONTRAST

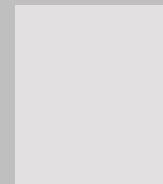
Background colors are shown with text colors that meet AA accessibility standards for the website.



- #FFFFFF - White
- #767676 - 18pt. or 14pt. Bold
- #E2E0E0 - SA LIGHT GREY
- #19B95C - SA GREEN
- #1A80C7 - SA BLUE
- #E53049 - 18pt. or 14pt. Bold



- #061A40 - SA DARK NAVY



- #061A40 - SA DARK NAVY
- #085889 - SA NAVY
- #1A80C7 - 18pt. or 14pt. Bold
- #E53049 - 18pt. or 14pt. Bold



- #FFFFFF - White
- #E2E0E0 - SA LIGHT GREY



- #FFFFFF - 18pt. or 14pt. Bold
- #061A40 - 18pt. or 14pt. Bold



- #061A40 - SA DARK NAVY
- #085889 - 18pt. or 14pt. Bold



- #FFFFFF - 18pt. or 14pt. Bold
- #E2E0E0 - 18pt. or 14pt. Bold
- #061A40 - 18pt. or 14pt. Bold



- #FFFFFF - WHITE
- #061A40 - 18pt. or 14pt. Bold



- #061A40 - SA DARK NAVY

CORE VALUE ICONS



BE AN
OWNER



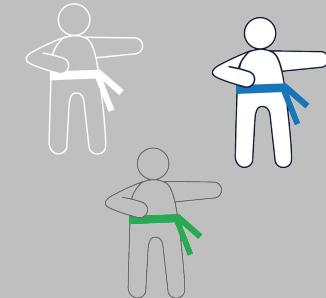
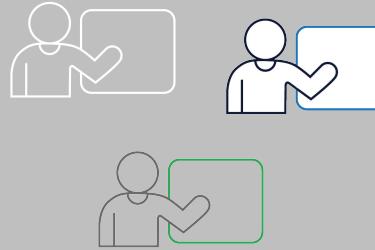
BE A
LEADER



BE A
TEACHER



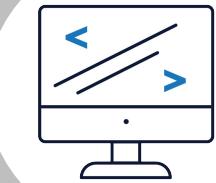
BE AN
EXPERT



6 SERVICES ICONS



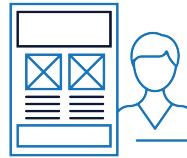
Quality
Engineering



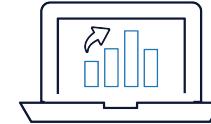
Software
Development



DevOps



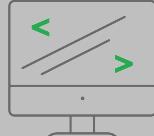
User
Experience



Data
Analytics



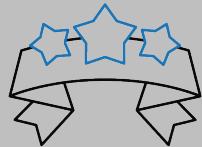
Delivery
Leadership



VALUE ICONS



Be a good
teammate



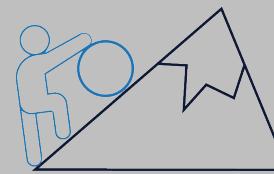
Lead
Without title



Seek
mastery



Practice your
craft



Show Grit



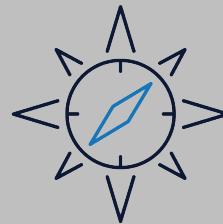
Have an
Ownership
mindset



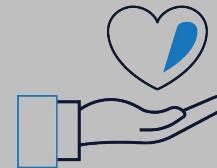
Make your
company better



Define yourself
as a consultant



Be
self-directed

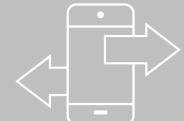
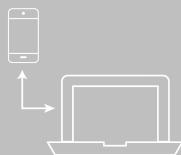
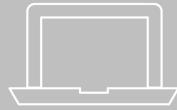


Share your
passion

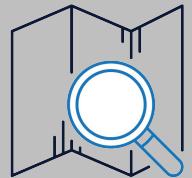
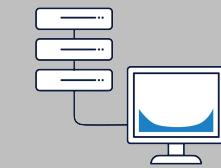
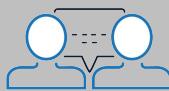
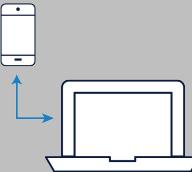
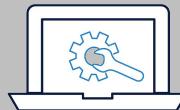
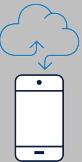
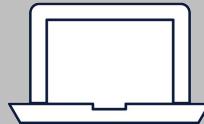
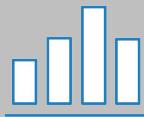


Communicate
openly

ICONS



ICONS



TYPOGRAPHY

Topic headlines on pages
should be located in the top left
corner, left aligned.

Lato, 30pt

Always use the font Lato

SUBHEADS ARE 24 pt. AND ALL CAPS

TOPIC NAME HERE

Topic headlines on opening/ front
cover pages should be located in the
center of the page, center aligned.

Lato, 36pt

Can have a green rule below, the same
width as the topic name

- Body text is also 20 pt., left aligned or 14 pt. If you have a lot of text.
- Use the Dark Blue text over white/grey
- Use white text over dark blue backgrounds
- Use 1.15 line spacing between lines.

HEADLINE 30PT

SUBHEAD 24PT AND ALL CAPS

Put an extra return between subheads and body text = 18pt

Body text is 20 pt., left aligned or 14 pt. If you have a lot of text.

- Use the Dark Blue text over white/grey
 - Use white text over dark blue backgrounds
 - Use 1.15 line spacing between lines.

This text box should be 3 spaces to the right of the heading

TYPOGRAPHY

“ A QUOTE CAN BE PLACED INSIDE THIS BOX HERE. THE QUOTE CAN BE SEVERAL SENTENCES LONG IF NECESSARY. ”

A quote should be in all caps, at 24pt. Lato. The quote should be inside a box and the quotation marks should be moved/adjusted to fit around the quote. It is okay if they break the edge of the box, but they should not be made larger or smaller. Attribution should be right aligned with text in 14pt - regular capitalization.

TYPOGRAPHY

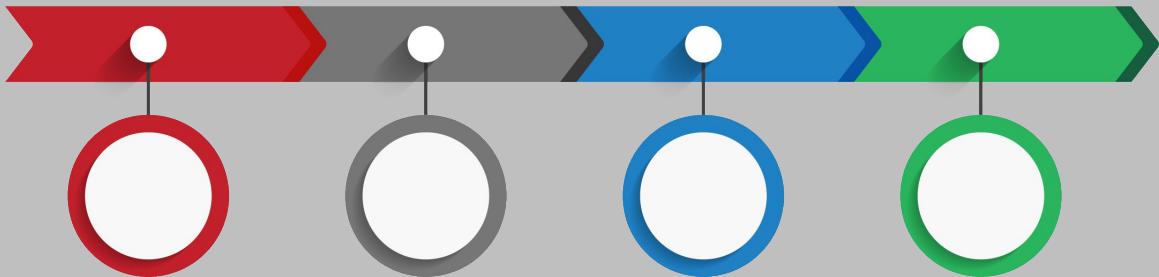
“

A quote can be placed here between these large quote marks. The quote can be two sentences long, and in lower case if there are more elements on the page. ”

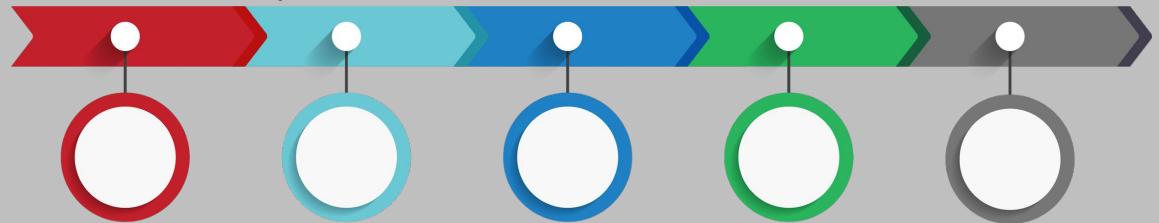
A quote can be in lower case if there is anything else on the page, at 24pt. Lato. The quote should be inside a box and the quotation marks should be moved/adjusted to fit around the quote. It is okay if they break the edge of the box, but they should not be made larger or smaller.

ASSETS

Timeline - 4 spaces



Timeline - 5 spaces



Timeline - 6 spaces

