King's Digital Lab

KING'S College LONDON

Digital researchers and data experts

We create digital tools to explore academic research in new ways.

KDL PRACTICES: Team, Systems, Data and Models Part 1

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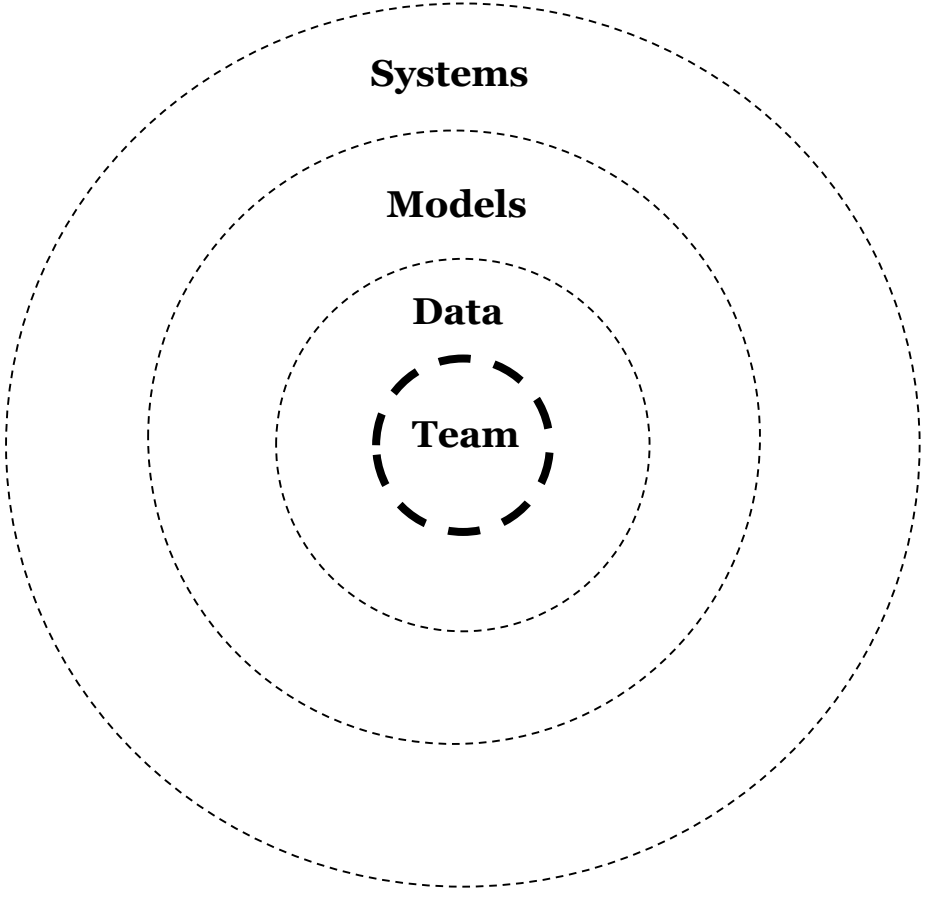
Dr. Arianna Ciula

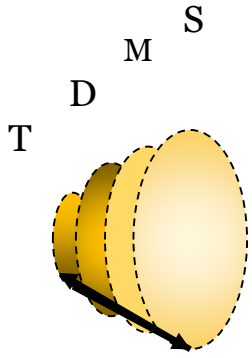
Deputy Director of King's Digital Lab

Senior Research Software Analyst

@ariciula

arianna.ciula@kcl.ac.uk

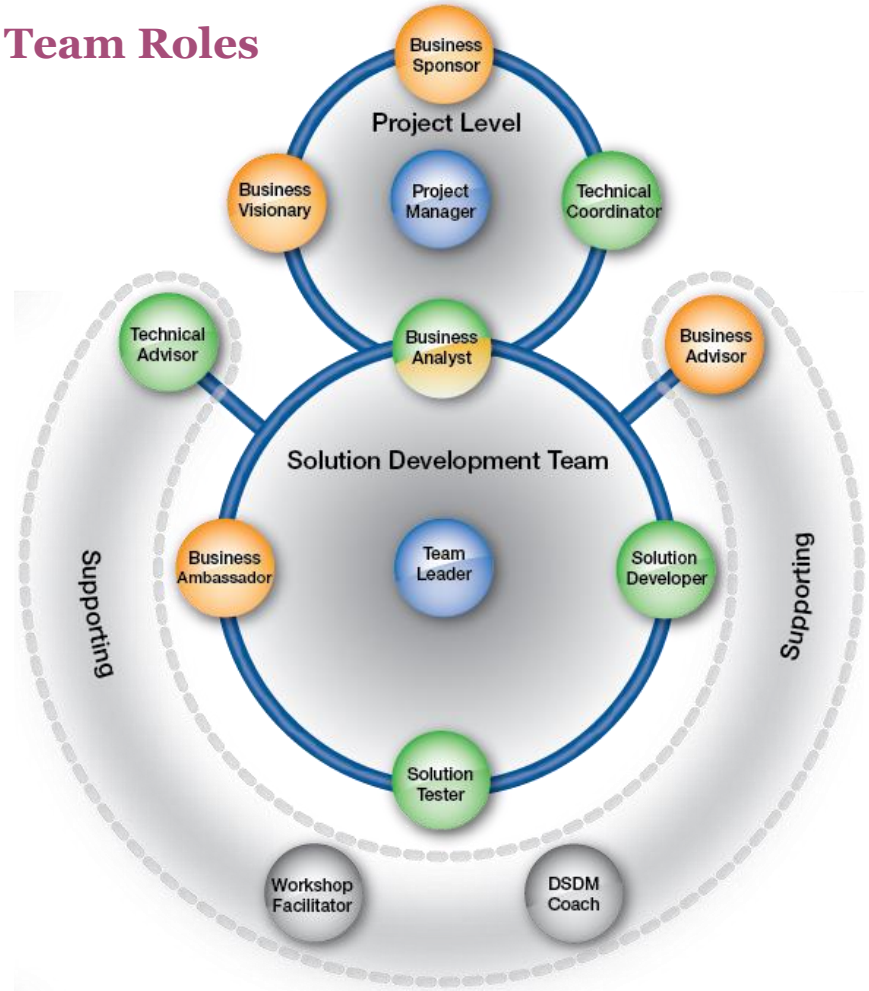




Co-constitution (bidirectional influence & dependencies)

Ciula and Smithies (forthcoming), Sustainability and modelling at King's Digital Lab.

Team Roles



Research Software Engineering roles around:

- Research and analysis
- Design (UI/UX)
- Development
- Management

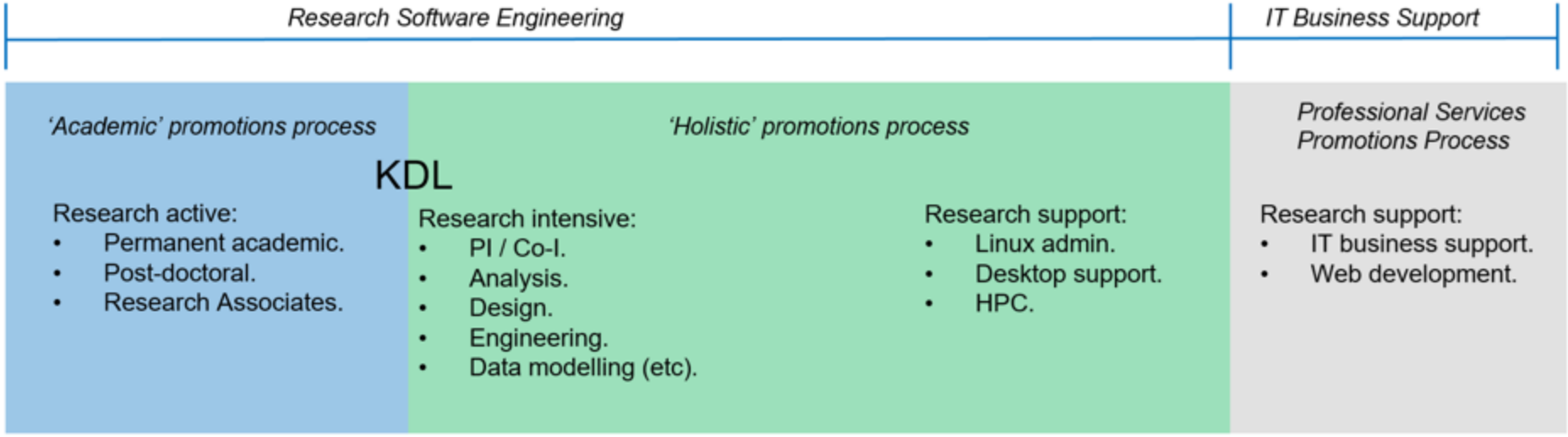
(of projects and of systems)

See the website of the Research Software Engineers Association.

Alignement to **Agile DSDM**

Agile Business Consortium (2014), *The DSDM Agile Project Framework*. Chapter 7: Roles and Responsibilities.

Team Roles



> Promotion process aligned to the RSE continuum.

> See Smithies (2019), The Continuum Approach to Career Development.

Structure of Team Role Description

Role (e.g. Analyst; Software Engineer; Project Manager; UI/UX Designer) - Senior & Principal

Overview

- Position Purpose
- Key Relationships
- Position Duties

Responsibilities	Key Duties	Time %
…	….	….

SFIA Alignment (see https://sfia-online.org for detailed information about Levels of Responsibility & Professional Skills)

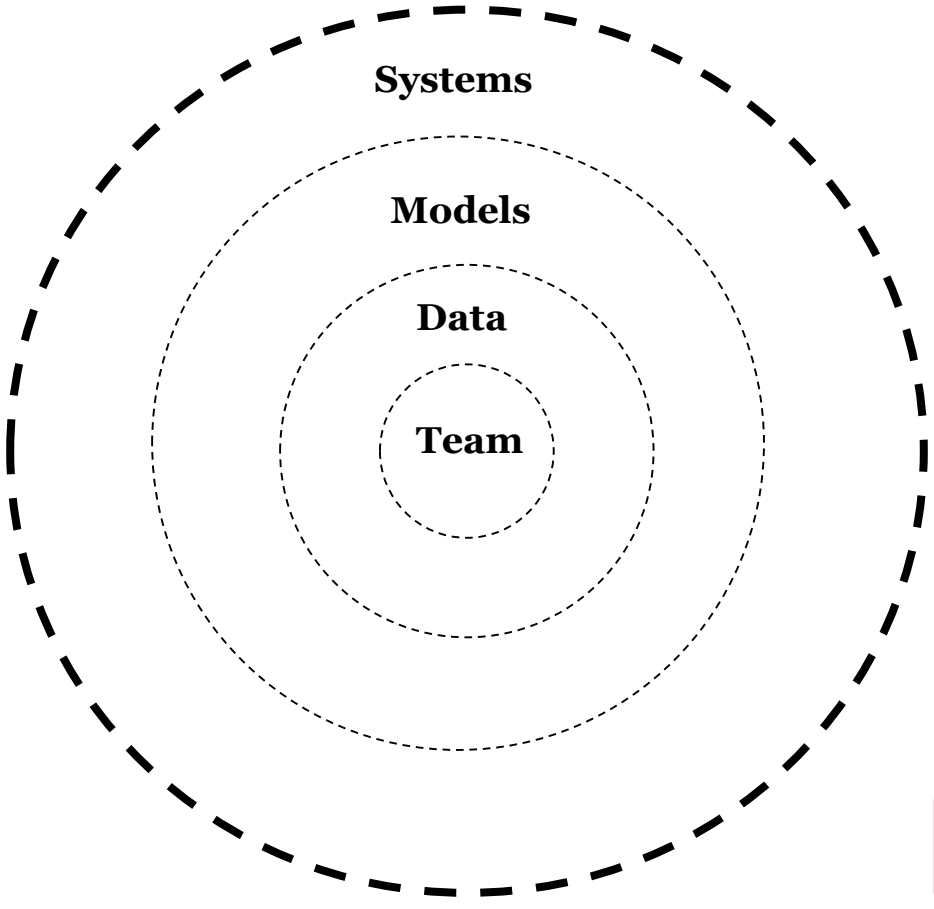
SDLC Roles

Person Specifications (essential and domain specific skills)

Responsibilities	Key Duties	Time %
Research Implementation	• Produce technical solutions, using tools and methods including but not limited to TEI-XML, high-level programming languages, RDBMS software.	10%
Research Analysis	• Deploy existing domain knowledge, or rapidly accumulate more, to understand the computational algorithms, requirements and interfaces involved in a research programming project. • Produce solution overview documents, detailing technical requirements, timelines, and cost, suitable for inclusion in funding bids. • Work with colleagues across the institution (including both eResearch and IT) to produce ontologies, data models, and documentation to support the production of technical research outputs.	30%
Project Management	• Take responsibility for the design and delivery of technical solutions, and their integration into wider institution technical frameworks and strategies.	20%
Teaching	• Contribute to training initiatives organized by eResearch teams, including introductory research analysis courses. • Provide online and face to face support, and associated documentation, for staff and students using software built or supported by eResearch teams.	10%
Personal research	• Develop a personal research agenda, capable of generating external funding, as either PI or Co-I. • Contribute to conferences, research papers, and research projects.	10%
Research Development	• Work with colleagues across the institution (including both eResearch and IT) to produce technical outputs (code, databases, web applications, databases).	5%
System, Software, and Data Maintenance & Support	• Monitor eResearch systems and tools, and patch / upgrade as required to ensure security and performance. • Produce technical and end user documentation to aid the use, support, and maintenance of eResearch systems and tools.	5%
Self-directed learning	• Maintain and improve skills in research software engineering through independent study and training courses.	5%
Community outreach	• Build or maintain relationships across the UK and international eResearch, eInfrastructure, and RSE communities. • Attend community events such as seminars and workshops. • Contribute expertise to internal and external committees and working groups. • Contribute to department and institution meetings and events.	5%

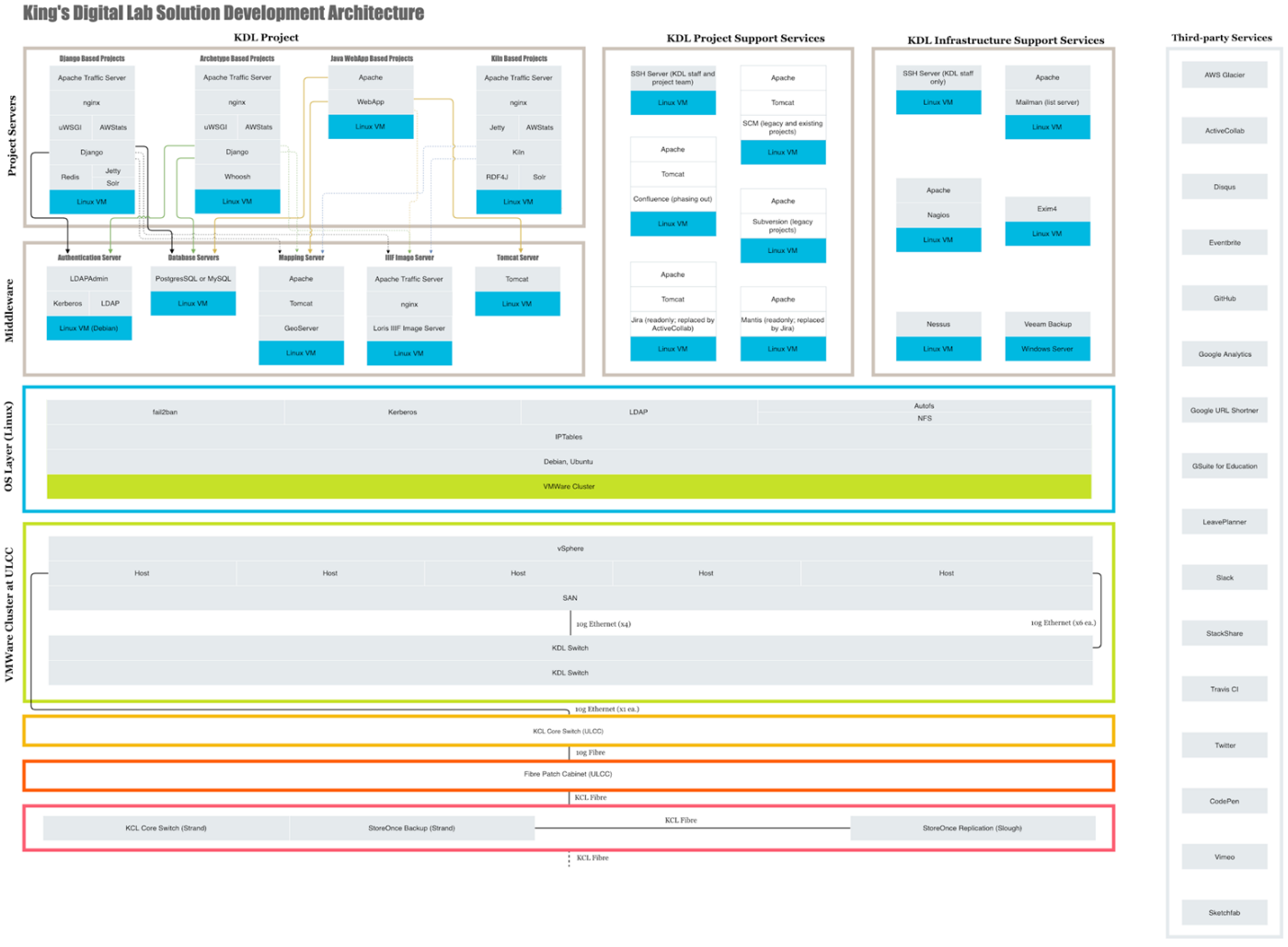
Example of analyst role

Team, Systems, Data and Models



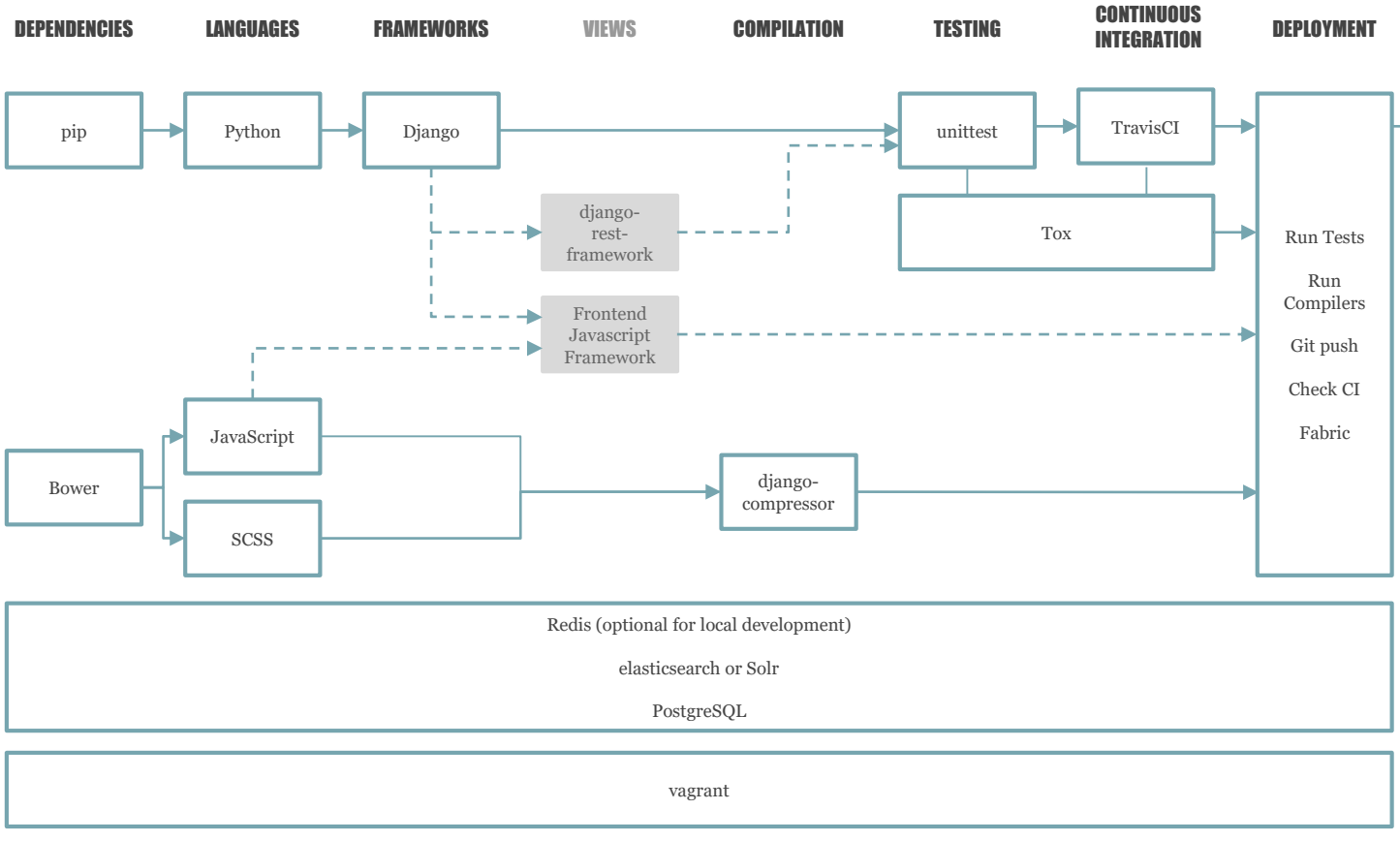
> Ciula and Smithies (forthcoming).

Solution Development Architecture



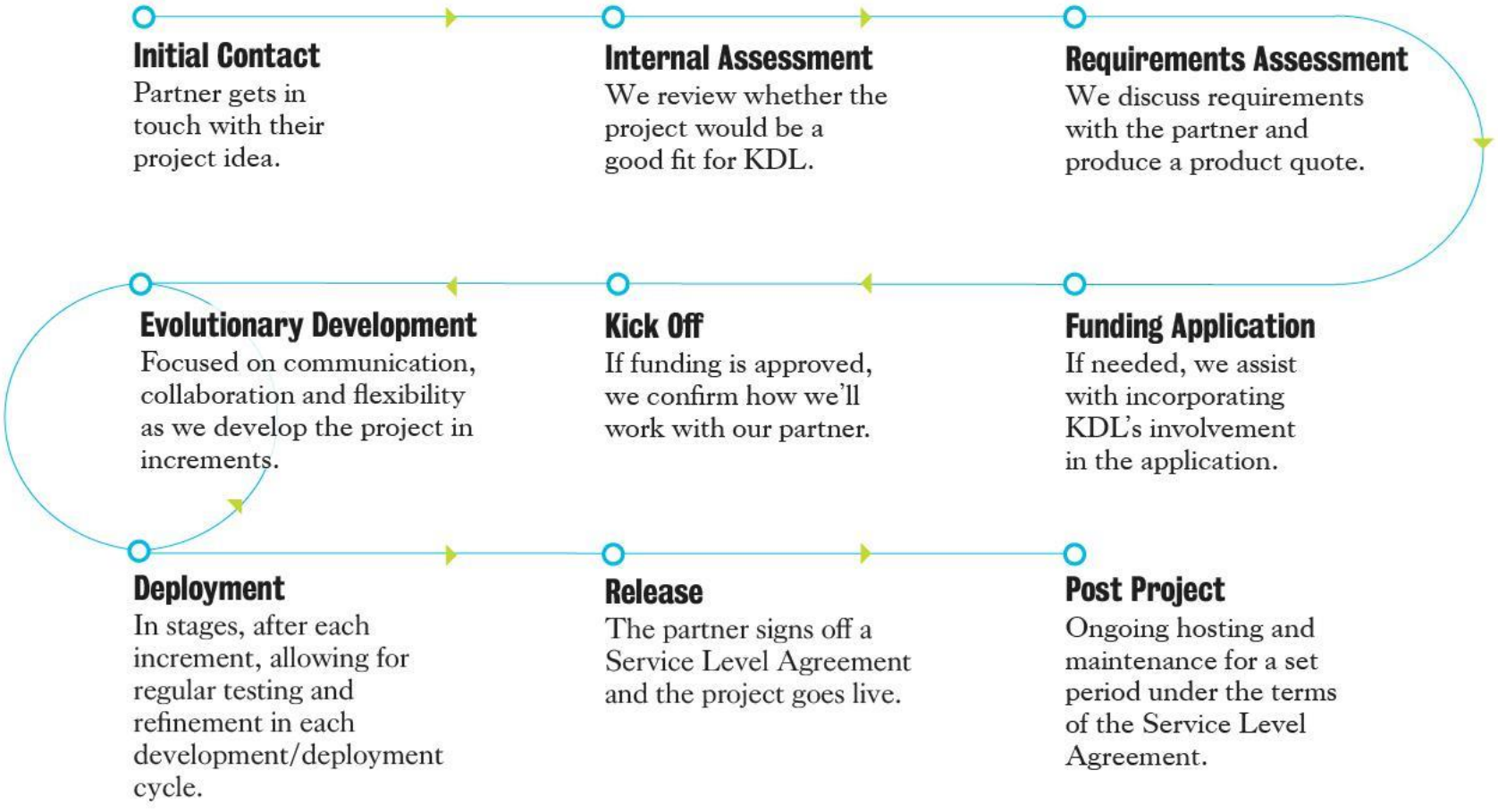
Graph by B. Maher, T. Ong, M. Vieira, and T. Watts (KDL).

Framework for Django projects

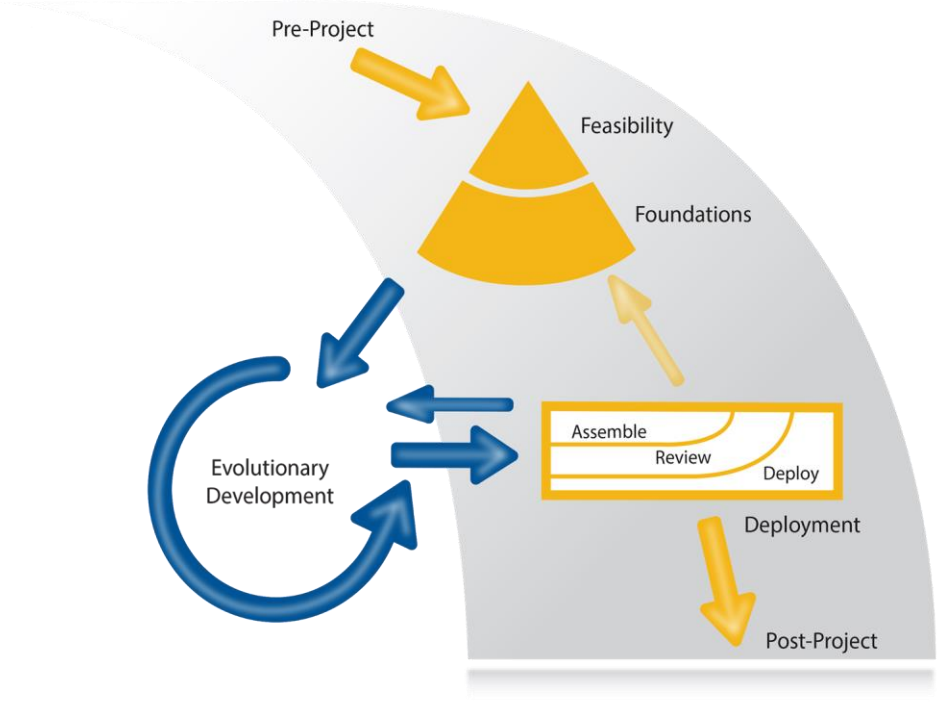


Graph by B. Maher, T. Ong, M. Vieira and T. Watts (KDL).

Software Development Life Cycle

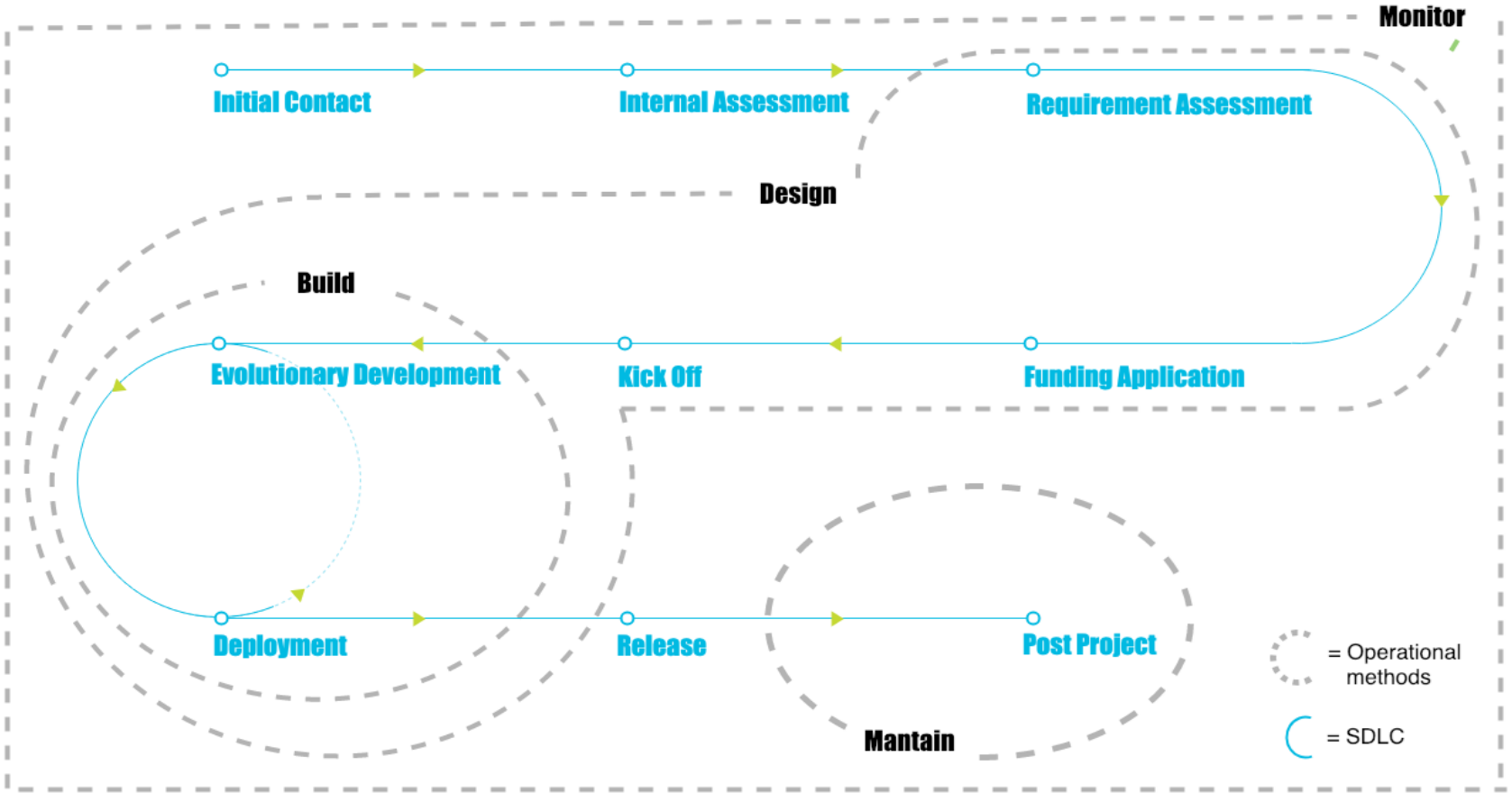


Alignement to Agile DSDM Process



Agile Business Consortium (2014). Chapter 6: Process. Image ©Agile Business Consortium Limited.

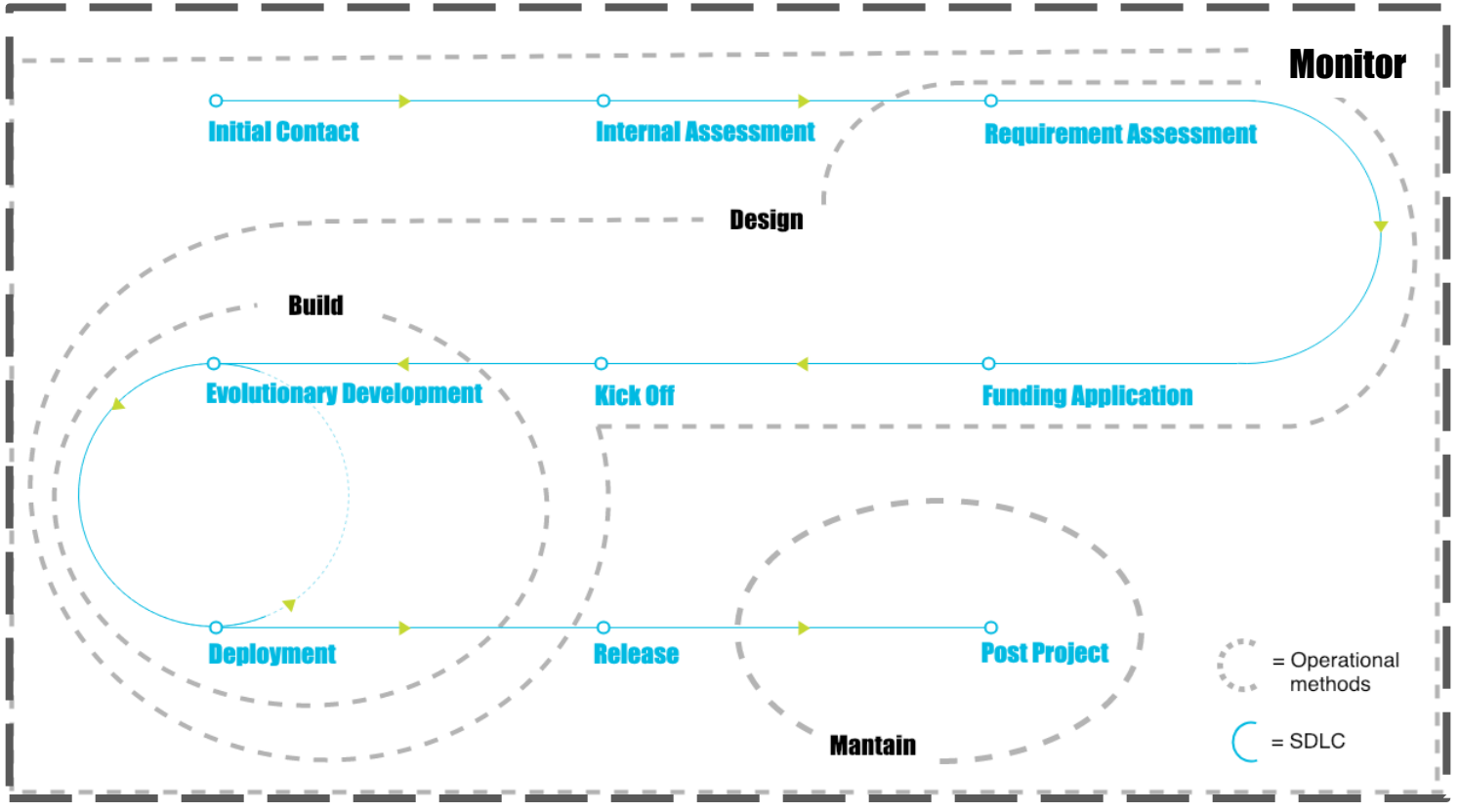
Software Development Life Cycle & Lab Methods



> Smithies and Ciula (forthcoming).

Software Development Life Cycle & Lab Methods

Monitor Methods

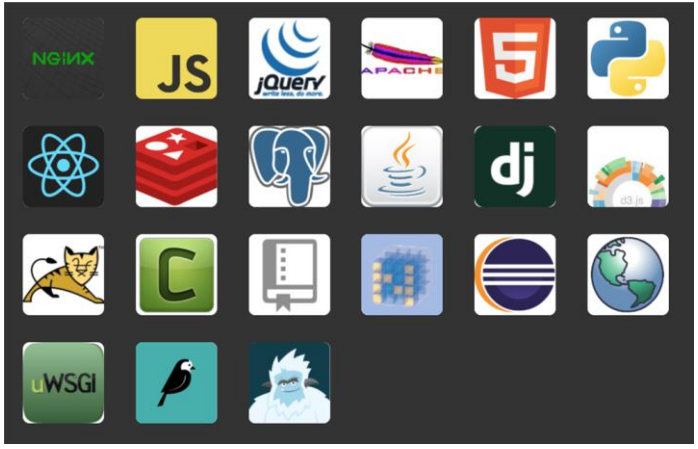


Smithies and Ciula (forthcoming).

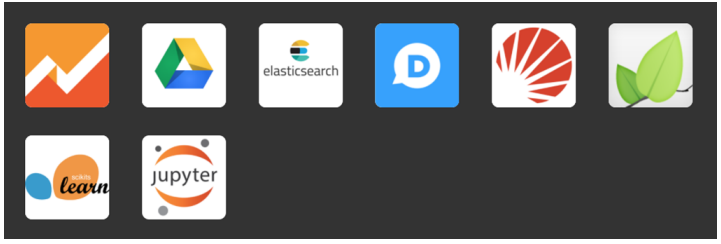
Project Management & Communication Tools

- Active Collab
- Slack
- G Suite for Education
- Code repositories

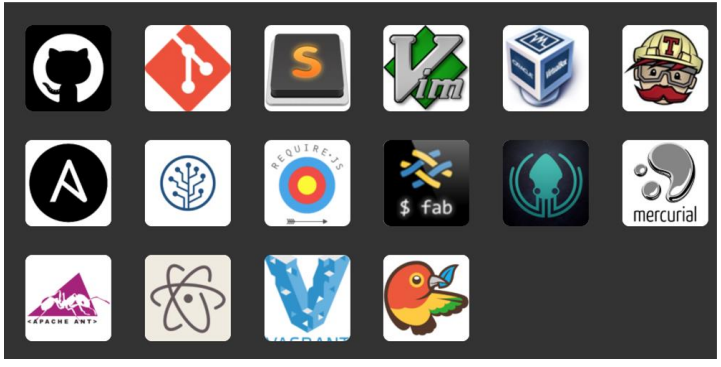
Application and Data



Utilities



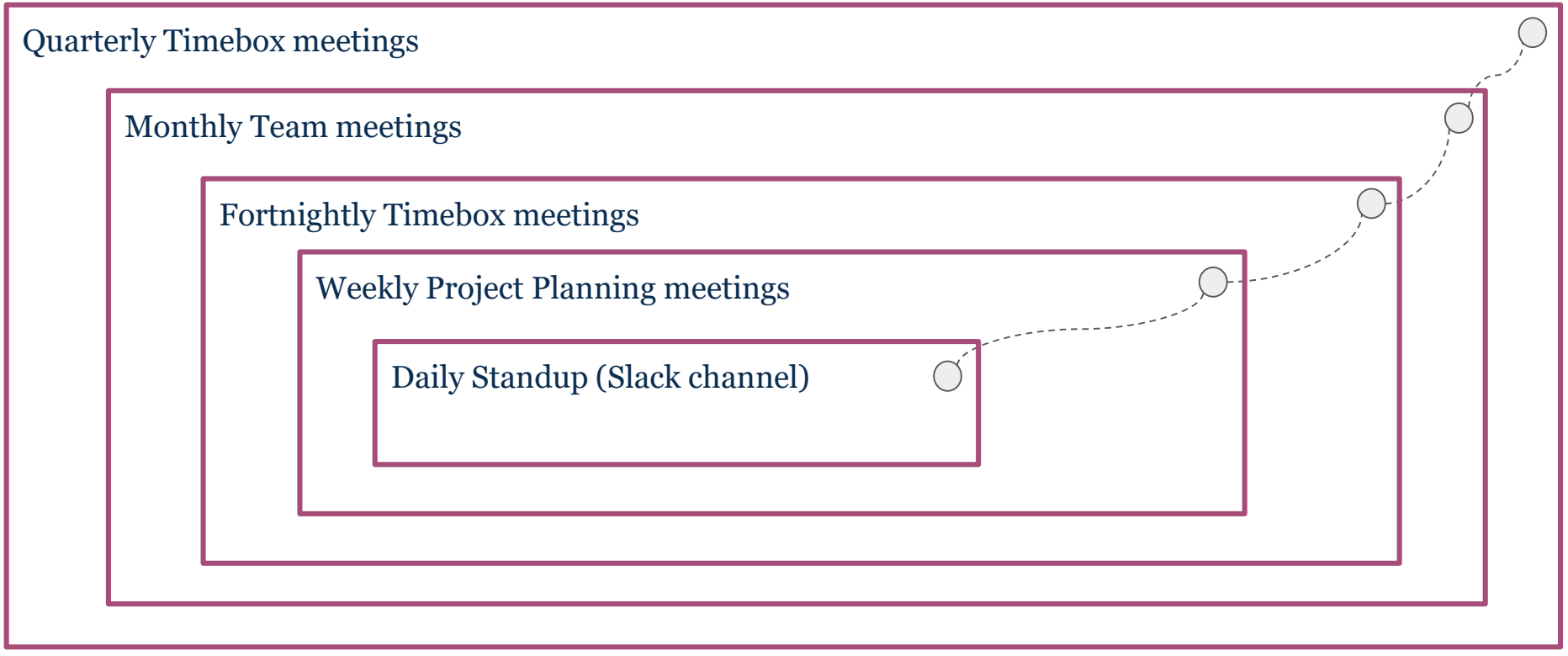
DevOps



Business Tools

See KDL on SlackShare.

Project Management & Communication



Funding Strategy

5 year strategy to increase covered costs

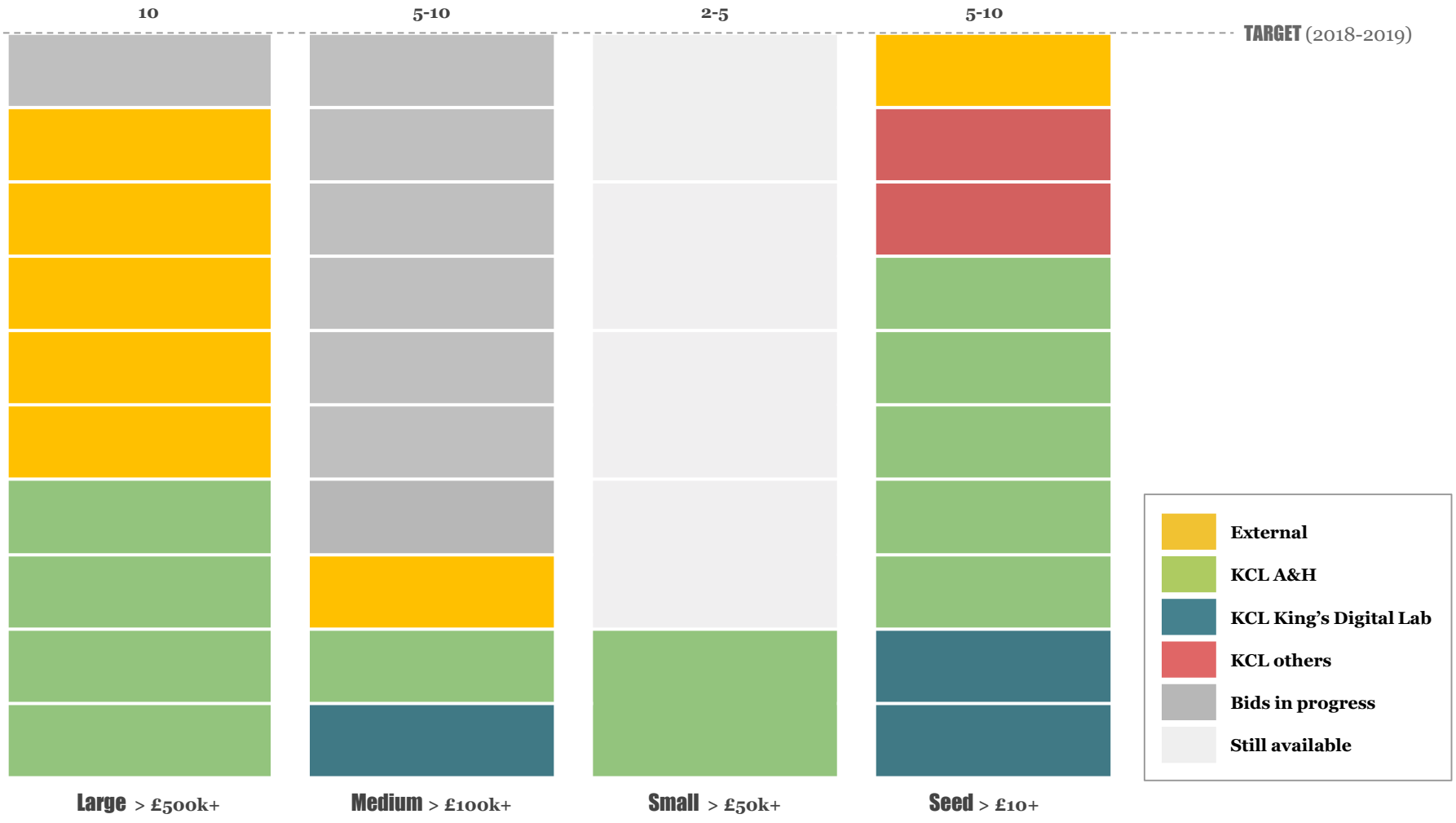
- 2017-18 KDL target via research bids: ca £1.5M >> target % cost recovery
- 2018-19 KDL target ca £1.4M

Funding spread 2018-19: ca. £20M

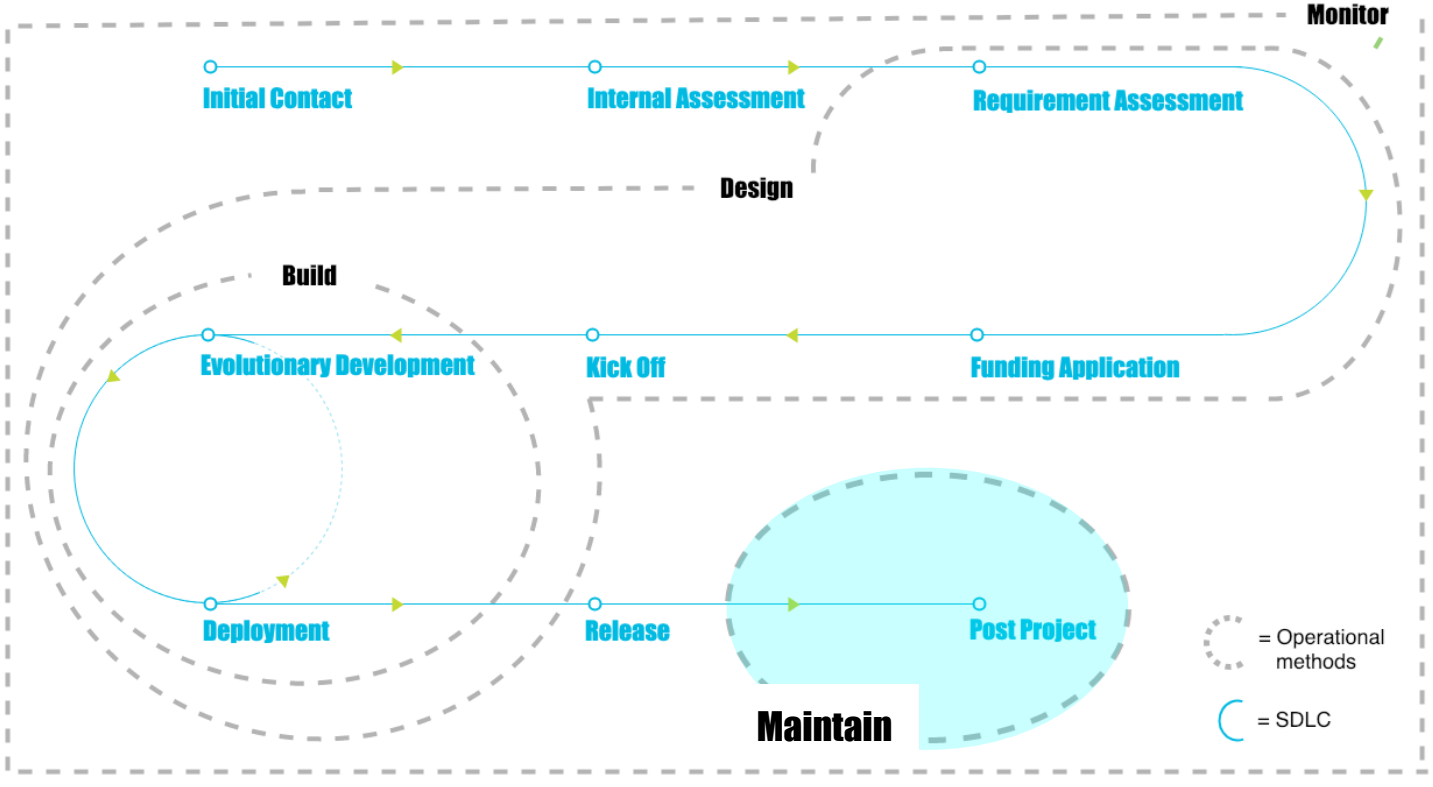
- 10 Large (£500k-1M)
- 5-10 Medium (£100k-£500k)
- 2-5 Small (£50k-£100k)
- 5-10 Seed / exploratory (£5k-£50k)

Diversified portfolio of funding providers

King's Digital Lab Funding status



Maintain Methods



Smithies and Ciula (forthcoming).

Archiving & Sustainability Approach

Maintenance under costed SLA
Usually 5-year

Migration
College ITS microsite service or to external host (another HEI or commercial provider)

Static conversion
Maintained public access but reduced functionalities

Dataset deposit
KDL CKAN, institutional technical systems, external repositories

Minimal archiving & storage
Minimal storage (for two years minimum) for project website (VM) and data on KDL infrastructure as well as web archives. A placeholder page is shown at a project URL with description, metadata, and links to snapshots.

See King's Digital Lab (2019), Archiving and Sustainability.

Image by Designecologist from Pexels

Archiving & Sustainability Approach

Maintenance under costed SLA
See project templates example

Migration
http://isr.cch.kcl.ac.uk/

Static conversion
https://clip2006.cch.kcl.ac.uk/clip2006/

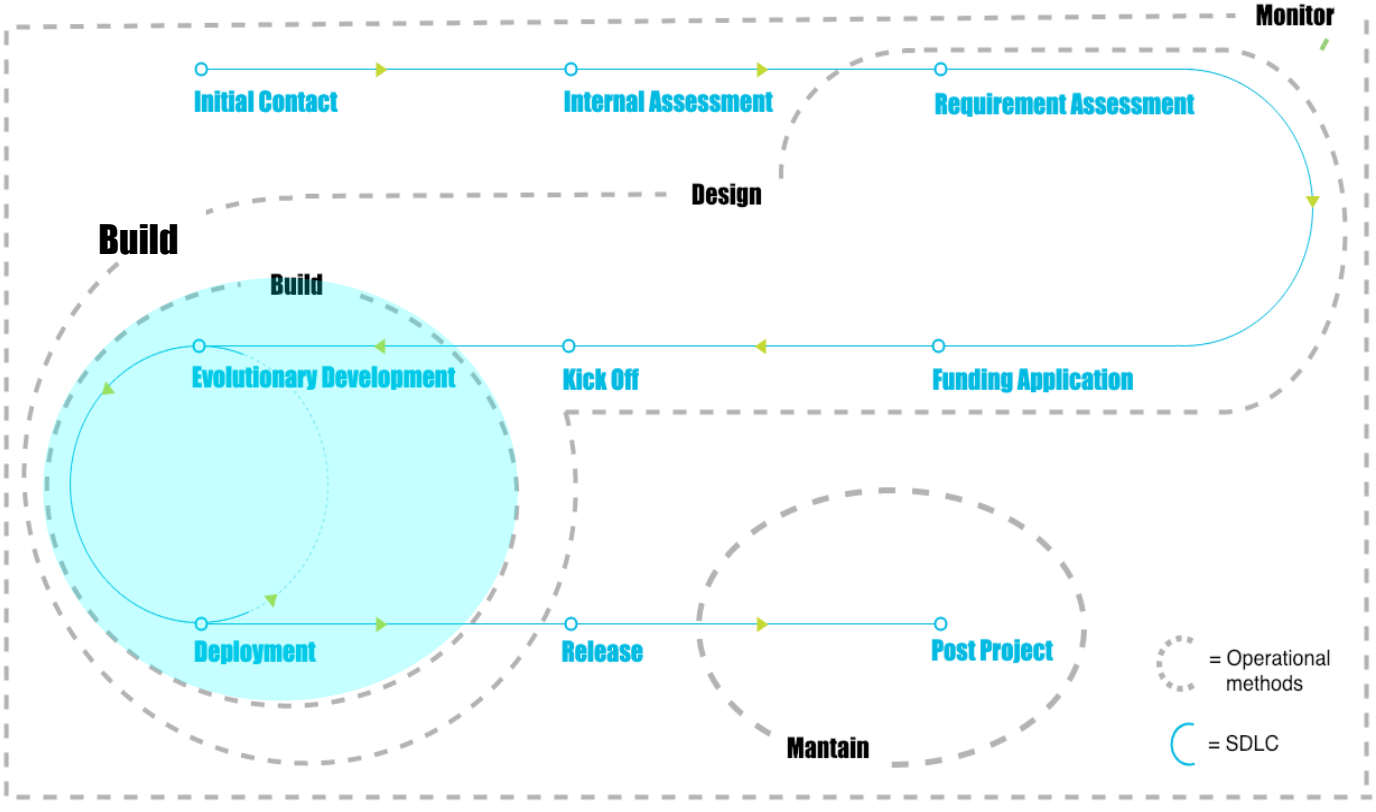
Dataset deposit
https://data.kdl.kcl.ac.uk/dataset/frh3

Minimal archiving & storage
http://www.ahds.ac.uk/

See King's Digital Lab (2019), Archiving and Sustainability.

Software Development Life Cycle & Lab Methods

Build Methods



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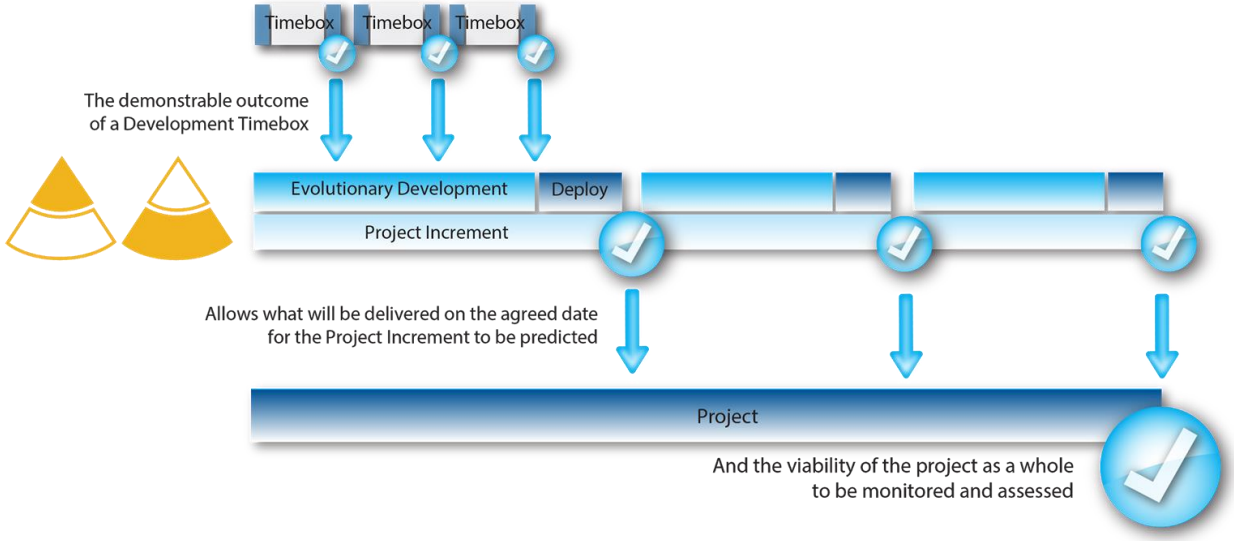
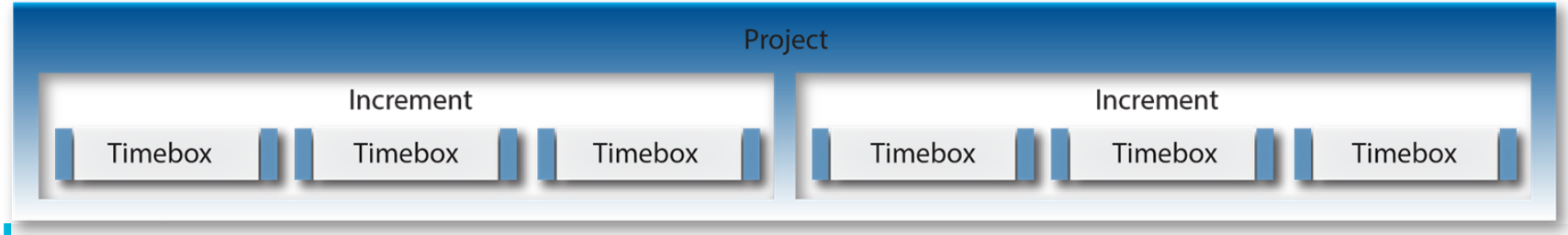
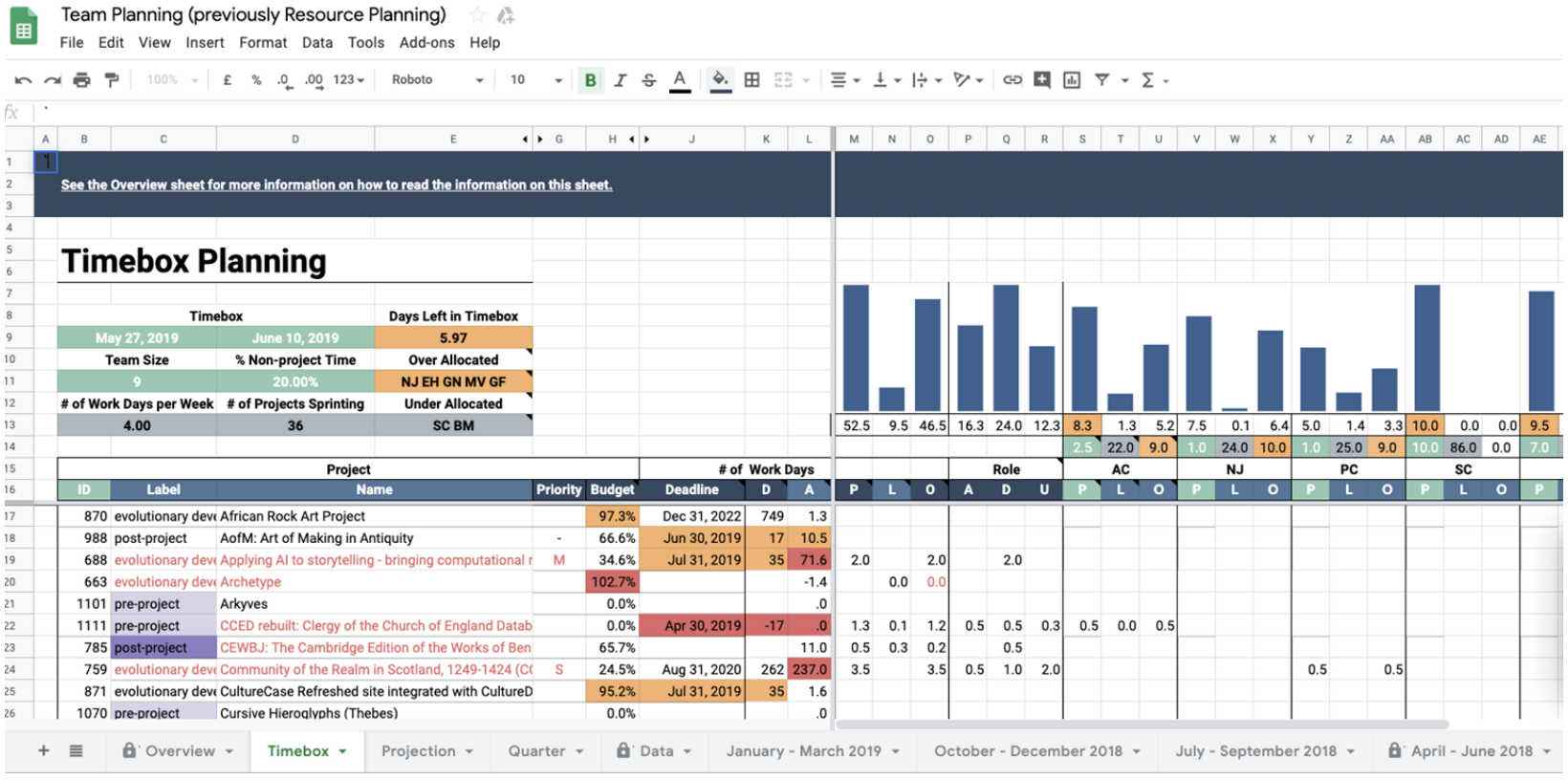
Alignement to Agile DSDM



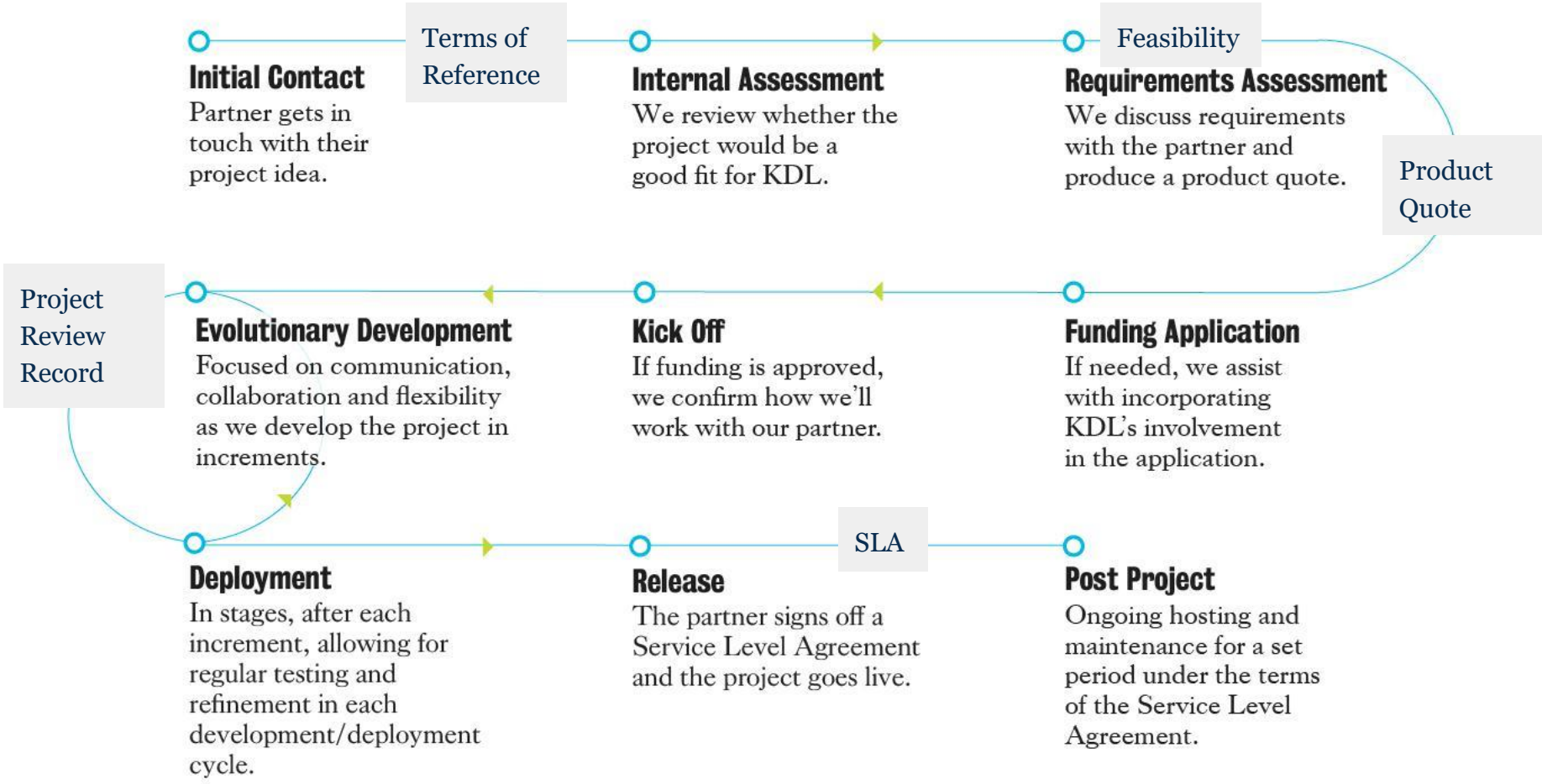


Agile Business Consortium (2014). Chapter 13: Timeboxing. Image ©Agile Business Consortium Limited.

Intersection between Building and Monitoring: Quarter and Timebox Planning



Software Development Life Cycle



Software Development Life Cycle

See KDL's SDLC for RSE and KDL project templates.

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