



Cabinet Office

Matt Hobbs

Head of Frontend

Government Digital Service

@TheRealNooshu

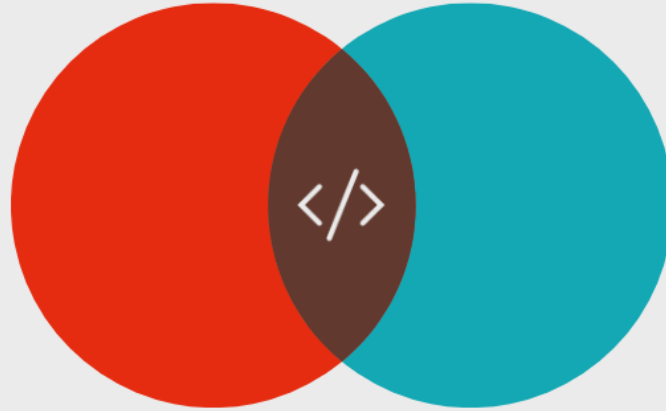
DDaT for the Frontend Community

What is the DDaT Profession Capability Framework?

- User centred design: graphic designer
- User centred design: interaction designer
- User centred design: user researcher
- Technical: software developer
- Technical: technical architect
- Technical: data architect
- Data: data scientist
- Product and delivery: business analyst
- Product and delivery: delivery manager
- Product and delivery: product manager

Technical: frontend developer 🥲

FRONTEND DEVELOPMENT POSITION IN DDAT



INTERACTION DESIGN



FRONTEND DEVELOPMENT



SOFTWARE DEVELOPMENT

**What work is
involved?**

- Role description
- Roll skill levels (summary of below)
- Separate seniority “skills they need”:
 - Principal
 - Lead
 - Senior
 - Mid
 - Junior
 - Apprentice

- For senior, lead, and principal it contains two paths
 - technical specialist career path
 - management career path
- Just because a seniority is listed in DDaT doesn't mean it will exist in practice (x-gov requirement)

Skills table

2.1 Essential skills

Skill	Description of the skill	Skill level	What the skill level means
Development process optimisation	Identifies and explores opportunities for service and business improvement. Drives the analysis, identification, prioritisation and implementation of improvements and efficiencies, thereby ensuring that the organisation derives maximum value from services. This includes recognising the potential for automation of processes, determining costs and benefits of new approaches and managing change or assisting implementation where needed.	Awareness	Aware of the importance consider developing process efficiency and the common ways in which processes are optimised. Supports specific activities to improve development processes. Able to spot or identify obvious deficiencies.
Modern standards approach	Uses a modern standards approach throughout automation and testing.	Practitioner	Uses a modern standards approach competently and guides others in so doing.
Programming and build (software engineering)	Uses agreed security standards and specifications to design, create, test and document new or amended software.	Practitioner	Collaborates with others when necessary to review specifications and uses these agreed specifications to design, code, test and document programmes or scripts of medium to high complexity, using the right standards and tools.
Service support	Maintains and supports services.	Working	Able to help fix faults following agreed procedures. Carries out agreed infrastructure maintenance tasks.
Systems design	Creates the specification and design of systems to meet defined business needs. Has the ability to work with business and technology stakeholders to translate business problems into technical designs. Able to visualise the ideal user service, come up	Working	Translates logical designs into physical designs. Produces detailed designs and documents all work using required standards, methods and tools, including

Interaction Designer

Essential skills

- Communicating information
- Digital perspective
- Evidence and context-based design
- Prototyping
- Understanding constraints
- User focus
- Prototyping in code
- Leadership and guidance

Desirable skills

- Agile working
- Community collaboration
- Strategic thinking

Software Developer

Essential skills

- Development process optimisation
- Modern standards approach
- Programming and build (software engineering)
- Service support
- Systems design
- Systems integration
- User focus

Desirable skills

- Availability and capacity management
- Information security
- Prototyping

Interaction Designer

Essential skills

- Communicating information
- Digital perspective
- Evidence and context-based design
- Prototyping
- Understanding constraints
- User focus
- Prototyping in code
- Leadership and guidance

Desirable skills

- Agile working
- Community collaboration
- Strategic thinking

Software Developer

Essential skills

- ~~Development process optimisation~~
- Modern standards approach
- Programming and build (software engineering)
- ~~Service support~~
- Systems design
- Systems integration
- User focus

Desirable skills

- ~~Availability and capacity management~~
- ~~Information security~~
- ~~Prototyping~~

Frontend Developer

Essential skills

- Communicating information
- Modern standards approach
- Programming and build (software engineering)
- Prototyping
- Systems design
- Systems integration
- User focus
- Leadership and guidance

Desirable skills

- Agile working
- Community collaboration
- Strategic thinking

Frontend Developer

Essential skills

- Accessibility

Desirable skills

- Web Performance Optimisation

Frontend Developer

Essential skills

- Communicating information
- Modern standards approach
- Programming and build (software engineering)
- Prototyping
- Systems design
- Systems integration
- User focus
- Leadership and guidance
- Accessibility

Desirable skills

- Agile working
- Community collaboration
- Strategic thinking
- Web Performance Optimisation

**What do the
skills mean?**

Essential skill: Communicating information

Currently in DDaT: Yes for Interaction Designers.

Description of skill for ID's:

Able to communicate effectively across organisational, technical and political boundaries, understanding the context. Makes complex and technical information and language simple and accessible for non-technical audiences. Able to advocate and communicate what a team does to create trust and authenticity and can respond to challenge.

Tweaked description of skill for FE's:

Able to communicate effectively across organisational, technical and political boundaries, understanding the context. Makes complex and technical information and language simple and accessible for non-technical audiences. Able to advocate and communicate what a team does to create trust and authenticity and can respond to challenge. Able to collaborate effectively with other organisational disciplines.

Essential skill: Communicating information

Mentioned in community user research: Yes

- mention of x-gov conversations between individuals and teams
- supporting colleagues across government to make work more accessible
- raising capability of others to do accessibility work in GDS and across government
- community support for the Design System
- multiple instances of working with other disciplines

Practical FE examples:

- working on a team with multiple disciplines to solve problems
- creating clear and concise PR's for other developers to review and future context sharing
- creating and editing documentation to be shared with your team, department or across multiple departments (open source)
- knowledge sharing internally at show / tell sessions, huddles, tech community meetups
- presenting work externally (outside government) including non-technical audiences
- working with a BE developer to manipulate data into the right shape for the interface

Essential skill: Modern standards approach

Currently in DDaT: Yes for Software Developers.

Description of skill for SD's:

Uses a modern standards approach throughout automation and testing.

Tweaked description of skill for FE's:

Uses a modern standards approach throughout development as well as automation and testing. If there's a need to deviate from standards, they can evidence reasons for doing so, based on how the system is used and how that differs from the approach advocated in the standard.

Essential skill: Modern standards approach

Mentioned in community user research: Yes

- consultant advising on accessibility needs detailed understanding of WCAG standards, including the reasoning behind the approaches they describe
- head of community responsible for defining approach to technical subjects so is required to understand detail of standards involved
- interpreting WCAG standards to ensure Design System code will be compliant when integrated into multiple products
- developer on Design System writes guidance and documentation used across government

Practical FE examples:

- share information and best practice across communities, departments, disciplines
- consulting W3C standards and specifications for information on how a technology is expected to be implemented
- contribute to modern standards in the form of feedback on relevant PR's, reporting bugs to browser vendors and involvement with the open standards team

Essential skill: Programming and build (software engineering)

Currently in DDaT: Yes for Software Developers.

Description of skill for SD's:

Uses agreed security standards and specifications to design, create, test and document new or amended software.

Tweaked description of skill for FE's:

Uses agreed ~~security~~ standards and specifications to design, create, test and document new or amended software.

Essential skill: Programming and build (software engineering)

Mentioned in community user research: Yes

- almost all the community interviewed are writing code
- most of those who write code mentioned writing tests for it
- some in the community are involved in backend work
- two people in the community mention code quality
- three people in the community talk about building code artefacts

Practical FE examples:

- writing code on a day-to-day basis
- participating in code reviews both in-person and via PR's
- debugging code and code refactoring
- cross-browser / cross-device development and testing
- mentoring and pair programming
- technical decision making around use and application of a technology
- using data to inform decision making

Essential skill: Prototyping

Currently in DDaT: Yes for Software Developers and Interaction Designers.

Description of skill for both:

Able to apply technical knowledge and experience to create or design workable prototypes, both programs and physical outputs. Understands parameters, restrictions and synergies.

Tweaked description of skill for FE's:

Able to apply technical knowledge and experience to create or design workable prototypes, both programs and physical outputs. ~~Understands parameters, restrictions and synergies.~~

Notes:

Point for discussion, is this something that a FE developer does? Wasn't really mentioned in user research. Could this be a desirable rather than essential?

Essential skill: Prototyping

Mentioned in community user research: Yes

- One person mentioned prototyping in their work
- Mainly done because the designer wasn't technical, becomes the default person
- Mocking of API's. Need to go in the DB sometimes to mock the data into a usable format
- Creating prototypes to test new technologies

Practical FE examples:

- Prototyping to look for the feasibility of a design and to test assumptions
- Prototyping to test a standard against its implementation in browsers and operating systems (e.g. number input field)
- Prototyping for testing a new technology for guidance (e.g. service workers)
- Prototyping for user testing to get useful results from user research settings
- Mocking of API data from Backend to Frontend
- Technical investigation into programme level changes / requirements
- Prototyping to test how a user interface pattern works across operating systems / assistive technologies / devices / browsers

Essential skill: Systems design

Currently in DDaT: Yes for Software Developers.

Description of skill for SD's:

Creates the specification and design of systems to meet defined business needs. Has the ability to work with business and technology stakeholders to translate business problems into technical designs. Able to visualise the ideal user service, come up with design ideas and possible design approaches. Explores different approaches to solving problems.

Tweaked description of skill for FE's:

Incorporate the specification and design of user interface systems to meet defined business needs. Has the ability to work with business and technology stakeholders to translate prototypes into technical designs. Able to visualise the ideal user service, come up with design ideas and possible design approaches. Explores different approaches to solving problems.

Essential skill: Systems design

Mentioned in community user research: Yes

- two participants mentioned systems design in the UR sessions
- “Data coming in from the DB, modify the UI to fit the data”
- “Work with a BE developer to make the data fit the UI”
- “how you write CSS in a way that it doesn’t come back and bite you later on”
- “how you version this stuff, what is a breaking change for the code’s consumers?”

Practical FE examples:

- works with the designer to identify any accessibility issues and help them make better decisions
- important to understand how the data flows in and out of the system so can work with a BE developer to map this on the frontend
- understands the advantages / limitations of any templating language in use and adapt accordingly
- prototyping and testing different solutions to influence any system design decisions to be made
- communication and documentation around the reason for the user interface being developed the way it has been
- feedback into the specification (either design or technical) to take into account frontend considerations that should be made.

Essential skill: Systems integration

Currently in DDaT: Yes for Software Developers.

Description of skill for SD's:

Integrates and tests components, systems and their interfaces to create operational services.

Tweaked description of skill for FE's:

Integrates and tests components, systems and their user interfaces to create operational services.

Essential skill: Systems integration

Mentioned in community user research: Yes

- mentioned by three users in the user research sessions
- integration of frontend components (from various GOV.UK libraries) into the application
- integration of third-party payment platforms into our existing codebase
- writing of integration tests to check see if the application works as expected

Practical FE examples:

- integration of frontend components into a backend stack
- writing integration tests to test for proper functionality and to monitor regressions
- integration of third-party systems into an existing codebase (e.g. Google Pay)
- working with colleagues in other disciplines to create and execute integration into a system
- documentation around the process and learnings of a system integration
- structure data for other developers to follow, create API mocks to simulate an integration
- involvement in a backend language / pair programming with a software developer to aid integration

Essential skill: User focus

Currently in DDaT: Yes for Software Developers and Interaction Designers.

Description of skill for both:

Understands users and can identify who they are and what their needs are based on evidence. Able to translate user stories and propose design approaches or services to meet these needs and engages in meaningful interactions and relationships with users. Puts users first and can manage competing priorities.

Tweaked description of skill for FE's:

No tweaks, also seems to fit the FE requirements

Essential skill: User focus

Mentioned in community user research: yes

- mentioned multiple times by most participants
- “understand what users need to do and how they use their web browser”
- “make it easy for users to update and to avoid frequent breaking releases”
- “frontend developer needs to pair with designers and get into the space of the users, seeing things from their perspective”

Practical FE examples:

- participate and run user research sessions to collect data to inform decisions
- active consideration of users in design and build
- focus on accessibility testing across a range of devices
- performance considerations made and how these can affect the user
- use of progressive enhancement to maximise access to for our users
- creation of prototypes for users to collect evidence and inform design / build
- identification of a specific user problem, collaborate with a multidiscipline team to solve
- consideration of our users demographic & technology to inform the build process

Essential skill: Leadership and guidance

Currently in DDaT: Yes for Interaction Designers.

Description of skill for ID's:

Interprets vision to lead on decisions. Creates a continually collaborative environment and sustains a good service. Understands and resolves technical disputes across varying levels of complexity and risk. Solves issues and unblocks problems. Drives teams and sets the pace, ensuring teams are delivering. Manages risk including effectively managing and tracking the mitigation of risks. Manages various dependencies across teams, departments and government as a whole.

Tweaked description of skill for FE's:

No tweaks, also seems to fit the FE requirements

Essential skill: Leadership and guidance

Mentioned in community user research: yes

- guidance was mentioned by two users
- leadership mentioned by one user
- “Good guidelines on building things so they’re accessible and robust.”
- “Writes guidance and documentation to give instructions and explain decisions made”

Practical FE examples:

- resolve technical PR’s and unblock problems for other colleagues
- leadership displayed in setting the direction of a programme / team
- recruitment and influence others to set teams priorities
- collaborate across teams / programmes to meet a common goal in the frontend space
- clear and concise guidance written for both users and developers
- contribution to department / community wide guidance
- cross-community / cross-department / cross-government guidance given in various formats (email, slack, presentations, meetups)

Essential skill: Accessibility

Currently in DDaT: No, specific to Frontend Developers.

Description of skill:

Able to apply technical knowledge and experience to create accessible user interfaces that put the users needs first. Understands users have different accessibility needs and is willing to become an advocate for users. Tests components and pages against accessibility standards across many devices and is able to fix issues discovered.

Essential skill: Accessibility

Mentioned in community user research: yes

- mentioned by almost everyone interviewed
- “test using assistive technologies and with users with access needs”
- “moved to GDS to work more on accessibility”
- “We prioritise accessibility and well-understood technologies”

Practical FE examples:

- use the empathy lab to test for accessibility issues
- use an external device lab to test for accessibility issues
- create prototypes and test pages to investigate accessibility issues across different browsers and devices
- run accessibility sessions within GDS and across other departments
- present accessibility findings via presentations and blog posts
- work to prioritise accessibility testing at a team / programme / department level
- automate the testing for accessibility issues
- writing accessibility guidance for internal and external people

Desirable skill: Agile working

Currently in DDaT: Yes for Interaction Designers.

Description of skill for ID's:

Is aware of and understands agile methodology and how to apply an agile mindset to all aspects of their work. Has the ability to work in a fast paced, evolving environment and utilises an iterative method and flexible approach to enable rapid delivery. Unafraid to take risks, willing to learn from mistakes and appreciates the importance of agile project delivery for digital projects in Government. Able to ensure the team has a situational awareness of what each other is working on and how this relates to practical government objectives and user needs.

Tweaked description of skill for FE's:

No tweaks, also seems to fit the FE requirements

Desirable skill: Agile working

Mentioned in community user research: Yes

- Mentioned by 2 participants in the user research:
- “Work done in either Agile or Kanban lifecycle.”

Practical FE examples:

- Face-to-face communication is used to communicate information across the team(s)
- Working as part of an agile multidisciplinary team
- Involvement in agile ceremonies like daily standups, sprint planning, retrospectives etc
- Working in sprints to deliver work
- Ability to fail fast and iterate quickly to solve problems

Desirable skill: Community collaboration

Currently in DDaT: Yes for Interaction Designers.

Description of skill for ID's:

Contributes to the work of the community, building successful teams through understanding team styles and influencing as well as motivating team members. Gives and receives constructive feedback, facilitating the feedback loop. Facilitates conflict resolution within teams, ensures the team is transparent and that the work is understood externally. Able to help teams maintain a focus on delivery while being aware of the importance of professional development.

Tweaked description of skill for FE's:

No tweaks, also seems to fit the FE requirements

Desirable skill: Community collaboration

Mentioned in community user research: yes

- Two people mentioned working across the community
- “work will filter down through the frontend community to project teams”
- “Contributes to planning of future work in the forms... of work around community”
- “supporting code and/or guidance contributions from members of the community”

Practical FE examples:

- Contribution to the GOV.UK Design System
- Constructive feedback on the work of others in the community (e.g. PR's, guidance, documentation etc)
- Sharing of knowledge and learning at Frontend community meetings
- Contribution to the GDS Way
- Managing contributions to the GOV.UK Design System
- Working with other teams to solve a specific problem
- Presenting at huddles and meet-ups (both internal and external)

Desirable skill: Strategic thinking

Currently in DDaT: Yes for Interaction Designers.

Description of skill for ID's:

Able to have an overall perspective on business issues, events, activities and an understanding of their wider implications and long-term impact. This could include determining patterns, standards, policies, roadmaps and vision statements. Can focus on outcomes rather than solutions and activities.

Tweaked description of skill for FE's:

No tweaks, also seems to fit the FE requirements

Desirable skill: Strategic thinking

Mentioned in community user research: yes

- Mentioned by three participants in the user research
- “documents to describe a strategy for the topic and research to evidence chosen decision”
- “help them make decisions and plan a strategy around it”
- “Working with Tech Lead and Product Manager on strategy and decisions.”

Practical FE examples:

- Working with other members of the team to plan future sprints and work
- Creating a plan for adoption / implementation of a component into a system
- Adapt work to due to shifting priorities and create a strategy to maximise output
- Understand dependencies in a system and work within those constraints
- Evaluate previous team work and build strategies to remedy issues found

Desirable skill: Web Performance Optimisation

Currently in DDaT: No, specific to Frontend Developers.

Description of skill:

Understands the delivery of assets can have a large impact on user experience. Can apply technical knowledge and experience to remove bottlenecks to improve performance. Can use various sources of data to monitor and identify performance issues. Explores different approaches to solving performance problems.

Desirable skill: Web Performance Optimisation

Mentioned in community user research: yes

- Five participants mentioned web performance in user research
- “...did research around performance impact”
- “...use certain functions over others due to performance gains”
- “...handles the performance and accessibility of the interface”
- “Start with what is perceived by users”

Practical FE examples:

- Make considerations about assets on the performance of a page
- Optimisation of the workflow / asset pipeline to minimise page weight
- Suggest / research / test performance optimisations
- Considers the users need to get to content, no matter what device / connection speed
- Auditing of a page / component to suggest and implement optimisations
- Use of third-party tools (Lighthouse, WebPageTest, Speedcurve) to evaluate current performance

Capturing user research themes

	Current team	Role	Planning	Code quality	Writing code	Building code artefacts	Testing code	Accessibility	Performance	Working with other disciplines	Deploying code	Researching	System design	Responsibility for other's work	Knowledge of design subjects	Doing backend stories
Participant 1	Design system	Frontend Developer	✓	✓	✓	✓	✓	✓	X	X	✓	✓	X	X	X	X
Participant 2	Design system	Frontend Developer	X	✓	✓	X	X	X	✓	X	X	X	✓	X	✓	✓
Participant 3	Design system	Tech Lead	✓	X	✓	X	✓	✓	✓	X	X	✓	✓	✓	X	X
Participant 4	Accessibility team	Accessibility consultant	X	X	✓	X	X	✓	X	✓	X	✓	X	X	X	X
Participant 5	GOVUK New Publisher	Senior Frontend Developer	✓	X	✓	X	✓	X	✓	✓	X	X	X	✓	X	X
Participant 6	GOVUK Data-informed content	Frontend Developer	X	X	✓	X	X	✓	X	✓	X	X	X	X	X	X
Participant 7	N/A	Head of frontend	X	X	X	X	X	X	X	X	X	✓	X	X	X	X
Participant 8	EU Exit work on GOVUK Business finder	Frontend Developer	X	X	✓	X	✓	✓	✓	✓	X	X	X	X	X	✓
Participant 9	EU Exit Trade Desk project at DIT	Frontend Developer	✓	X	✓	X	✓	X	X	✓	X	X	X	X	X	X
Participant 10	GOVUK Pay	Frontend Developer	✓	X	✓	✓	✓	✓	✓	X	X	X	X	X	✓	X

Identified User Research Themes

Shared

- Planning
- Code quality
- Writing code
- Building code artefacts
- Testing code
- Accessibility
- Performance
- Working with other disciplines
- Deploying code
- Researching
- System design
- Responsibility for others work
- Knowledge of design subjects
- Doing backend stories

Related to software products

- Releasing code to users
- Community support

Around accessibility consultancy

- Helping colleagues at GDS produce more accessible work
- Supporting colleagues across government to make their work more accessible
- Raising capability of others to do accessibility work in GDS and across government

Around Head of Frontend

- Where cross-GDS frontend work comes from
- Deliverables of cross-GDS frontend work
- Consumers of cross-GDS frontend work
- Using influence to get work done
- Identifying risk

User research theme	DDaT Skill - Essential skills									DDaT Skill - Desirable skills			
	Communicating information	Modern standards approach	Programming and build (software engineering)	Prototyping	Systems design	Systems integration	User focus	Leadership and guidance	Accessibility	Agile working	Community collaboration	Strategic thinking	Web Performance Optimisation
Planning	✓		✓	✓						✓		✓	
Code quality		✓	✓		✓								✓
Writing code			✓	✓	✓	✓							
Building code artefacts			✓		✓								
Testing code		✓	✓										✓
Accessibility			✓				✓		✓		✓		
Performance		✓	✓	✓		✓	✓						✓
Working with other disciplines	✓		✓		✓	✓		✓		✓	✓		
Deploying code			✓	✓	✓	✓							
Researching	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
System design			✓		✓								
Responsibility for others work	✓		✓		✓	✓		✓			✓		
Knowledge of design subjects	✓			✓	✓		✓				✓		
Doing backend stories	✓		✓	✓	✓	✓			✓		✓		
Releasing code to users			✓	✓		✓	✓						
Community support	✓						✓				✓	✓	
Helping colleagues (GDS) produce more a11y work	✓		✓					✓	✓		✓	✓	
Supporting colleagues (x-gov) produce more a11y work	✓		✓					✓	✓		✓	✓	
Raising capability of others to do accessibility work in GDS and across government	✓		✓					✓	✓		✓	✓	
Where cross-GDS frontend work comes from	✓	✓					✓	✓		✓	✓	✓	
Deliverables of cross-GDS frontend work	✓		✓			✓	✓	✓		✓	✓	✓	✓
Consumers of cross-GDS frontend work	✓					✓	✓	✓	✓		✓	✓	
Using influence to get work done	✓		✓	✓			✓	✓			✓	✓	✓
Identifying risk	✓		✓	✓			✓	✓			✓	✓	

Creating a narrative

A Frontend developer (at GDS) is someone who uses a modern standards approach to software engineering. They lead on decisions, can unblock problems and solve issues. They pride themselves on creating accessible user interfaces that are performant and serve user needs. They build working prototypes to test with users. Once tested, these prototypes are translated into production ready user interfaces for integration into services. They collaborate closely with other disciplines and can analyse technical information and make it digestible for all audiences.

Ideally a frontend developer has experience working in an agile manner. They are willing to contribute to the work of the community. This includes understanding the wider implications and long-term impact of their work and that of the community.

Next Steps

1. Lean coffee discussion,
 - a. Agree on the essential & desirable skills
 - b. Multiple sessions if required
2. Populate the “skill level” and “what the skill level means” for each seniority level
3. Pass back to Frontend community for internal review
4. Completed documentation passed to DDaT
5. DDaT works with x-gov community for validation



Cabinet Office

Thanks!

Matt Hobbs

@TheRealNooshu