1

Agile Teams:
Key Roles & Skillsets

Tara Bazler · Chris Basham

2

CHALLENGES

There are a number of challenges regarding web development, especially for the front-end.

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Back-end governs data.

Front-end governs user interface.

Back-end and front-end are concerned about very different things. These pieces can be developed separately, yet communicate through an API. For the purposes of this talk, the front-end and those responsible for it will be the primary focus.

DEVICES WITH BROWSERS

Desktop   TV
Laptop   Game console
Phone   E-reader
Tablet

4   There are many categories of devices with browsers, each with different capabilities, means of interaction, and context of typical usage.

TYPES OF BROWSER INTERACTION

Keyboard   Touch
Mouse   Gesture
Screen readers   Voice

5   Mobile devices demand much different interactions than traditional desktop/laptop devices.

DEVICE CAPABILITIES

Location
Orientation
Notifications

6   There's a few different device APIs that are now becoming pretty common on the web.

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Connectivity   Ambient light
Contacts   Proximity
Battery status Camera

But there are many more device APIs that are being specified, which will be widespread in the next couple years.

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Native apps have known device & software features.

When developing apps for platforms, such as iOS and Android, there's a relatively predictable understanding of the limitations and capabilities.

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Web apps have unknown device & software features.

However, web apps can exist in any platform, and the unknowns and potential limitations are considerably greater than native apps.

> "The fact is that we can't absolutely rely on the availability of any specific technology when it comes to delivering a Web experience."
>
> —Aaron Gustafson, *A Fundamental Disconnect*

10

Aaron Gustafson, a big proponent of progressive enhancement in the web community, discusses the technological limitations of designing for the web.

http://aaron-gustafson.com/notebook/2014/a-fundamental-disconnect/
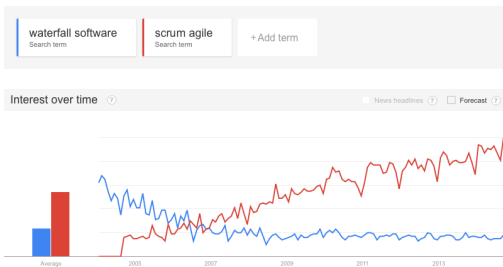

AGILE SCRUM

11

As the challenges of development increase, organizations explore various options to better address the complexity they face. In many cases, this has lead to the adoption of completely different development methodologies.

12

Over the past 10 years, there has been an ongoing trend to move from traditional waterfall development to the Agile Scrum development framework.

From Google Trends: http://www.google.com/trends/explore?hl=en#q=waterfall%20software,%20scrum%20agile%20

13

4 Fundamental Values
of Agile Scrum

Taken from the Agile Manifesto.

14

Working software
over comprehensive
documentation.

The goal for each sprint is to have potentially shippable software - this may be in the form of adding a new feature or an improvement to an existing feature, etc. But whatever the improvement, the goal is an increment of the product in every sprint.

15

Customer collaboration
over contract negotiation.

Ongoing, rich collaboration between the product owner and the development team to assure highest possible value of the product.

16

FUNDAMENTAL VALUES

Responding to change over following a plan.

Teams must actively inspect development and progress and make necessary adjustments as things change over time.

17

FUNDAMENTAL VALUES

Individuals & interactions over processes & tools.

Emphasis on team structure, how the team interacts, and the responsibilities placed on the teams.

It is the team's responsibility to determine what needs to be done within a sprint, how to do it, and to get that work completed.
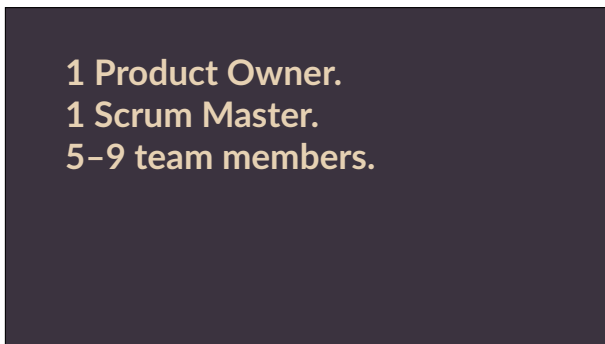
18

INDIANA UNIVERSITY TEAM STRUCTURE
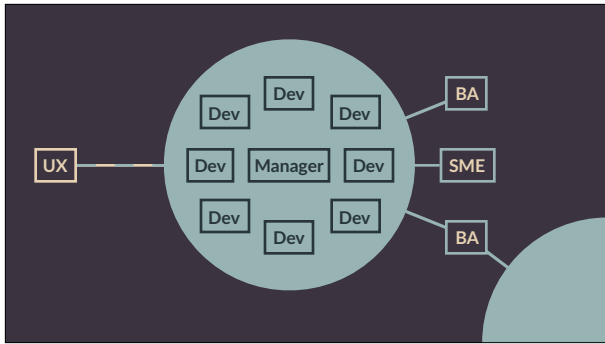
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Teams of developers consult with functional folk as needed. User experience (UX) designers are not always involved. If they are involved, their participation may be limited or occur too late in the process.

20

AGILE SCRUM
TEAM STRUCTURE

21

1 Product Owner.
1 Scrum Master.
5–9 team members.

Product Owners define and prioritize the work.
Scrum Masters facilitate the process.
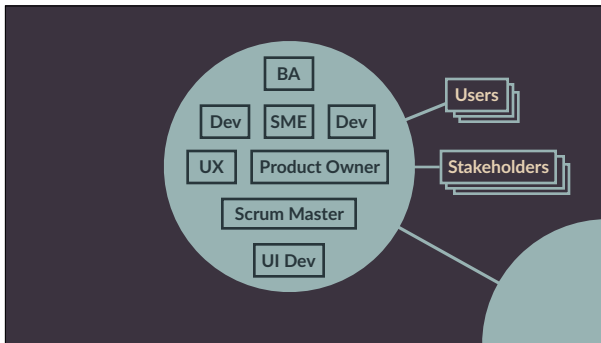Team members do the work.

22

1 Product Owner.
1 Scrum Master.
5–9 team members.

Teams are a blend of all talents
needed to develop a product.

23

Teams talk with users, stakeholders, and other teams to obtain feedback and input as the product is developed.

BA
Dev SME Dev
UX Product Owner
Scrum Master
UI Dev

Users
Stakeholders

24

Selects goals from the backlog, as prioritized by the Product Owner. Sprints are typically two-weeks long.

Teams determine sprint goals.

25

Teams are responsible for completing sprint goals.

Teams collectively complete or fail their sprint goals. Members are accountable to their team.

26

Teams have authority to do what is needed to complete sprint goals, within project guidelines.

Traditionally, higher authorities dictate how goals should be completed; teams merely execute. Now, both the how and execution is the responsibility of teams.

27

USER EXPERIENCE DESIGNERS

28

UX designers research the needs & expectations of users.

Understanding user goals and preferences.

User interactions - how does the user want to interact with the system/data? How do they want to complete their task?

Accessibility considerations - can users with disabilities access and use the site/system?

29

UX designers research the needs & expectations of users.

Create interface designs.

Wireframes.

Information architecture.

Professional, polished look and feel.

30

UX designers research the needs & expectations of users.

Create interface designs.

Evaluate & optimize task flow.

Identify the best and most efficient path for users to accomplish their goals.

Identify ways for the system to assist users - for example, completing known items in a form rather than forcing the user to re-enter the same data.

31

Interface design
Interaction design
User research

Ability to understand user needs and translate those needs into usable screens.

Create wireframes via tool/environment of choice (Axure, Omnigraffle, Adobe Suite, HTML, etc.).

Obtain user input and feedback through a variety of methods including: contextual inquiry, interviews, focus groups, design critiques, usability testing, surveys, etc.

32

"...empower your designer with the maximum amount of agency to do their job well. No one tells the accountant how to do their job, but I've been in a hundred workplaces where people told the designer how to do theirs."

—Mike Monteiro, *Before You Hire Designers*

If you hire a well qualified, experienced designer, their decisions will be taking into account many factors that non-designers will not think about. Give your designer the authority to use their expertise and to 'design'. Your interface should not be the product of someone's whim or preference.

http://alistapart.com/article/before-you-hire-designers

33

USER INTERFACE DEVELOPERS

34

UI developers build everything that is sent to the browser.

UI developers are responsible for all the HTML, CSS, JavaScript, graphics, and other assets that are sent to the browser.

35

UI developers build everything that is sent to the browser.

Aligns with experiential vision as imagined by designers.

UI developers implements concepts and designs of UX designers and prepares the code for production use.

36

KEY SKILLS

HTML, CSS, JavaScript
Build systems
Integrating with back-end APIs
Performance

UI developers are experts of HTML, CSS, and JavaScript. They will typically construct robust build systems to automate front-end tasks (e.g. gulp or Grunt) for both development and production. They write a front-end that communicates with the back-end via an API. All the while, code must be respectful of limited computing power, restrictive network bandwidth, and browser rendering time.

MODERN & FUTURE WEB

37

UX and UI dev roles are crucial for success, especially as web apps become more complex.

Enhanced features & content based on user context & device capabilities.

38

Design a base experience that everyone will minimally receive, then progressively enhance the experience as the technology or context allows. This strategy aligns well with the mobile-first philosophy. It's infeasible to design for desktop-first or desktop-only and expect the experience to downgrade well.

Context aware.

Mitigate factors hindering user goals.

39

Awareness of factors in the environment (physical, digital), between individuals (social), or within a person (psychological, physical) that affects the user accomplishing their task (intention).

Assist users in accomplishing their goals by mitigating negative factors like interruptions, distractions, awkwardness, chronic or temporary impairments, lack of knowledge or experience.

It's difficult to extrapolate context and intention; much is yet to be pioneered here regarding both design and technology.

Device agnostic.

Use won't always occur on the primary or preferred device.

40

Even if under ideal circumstances, you can't guarantee an app will always be accessed in a preferred manner. Build apps that work well on whatever screen, on whatever device.

"It is your mission to get your content out, on whichever platform, in whichever format your audience wants to consume it. Your users get to decide how, when, and where they want to read your content. It is your challenge and your responsibility to deliver a good experience to them."

—Karen McGrane, *Your Content, Now Mobile*

41

Content and data providers should align with how users wish to use your content. A bad experience results when there's no understanding and the means of access is forced.

http://alistapart.com/article/your-content-now-mobile

Karen McGrane is the author of "Content Strategy for Mobile."
http://www.abookapart.com/products/content-strategy-for-mobile

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Multiscreen patterns.

42

People interact with an ecosystem of screens, and we should build systems that acknowledge and leverage those connections. These systems behave in ways that complement, not restrict, human behavior. The following patterns demonstrate a few ways in which these systems could be designed.

43

COHERENCE PATTERN

Patterns for Multiscreen Strategies
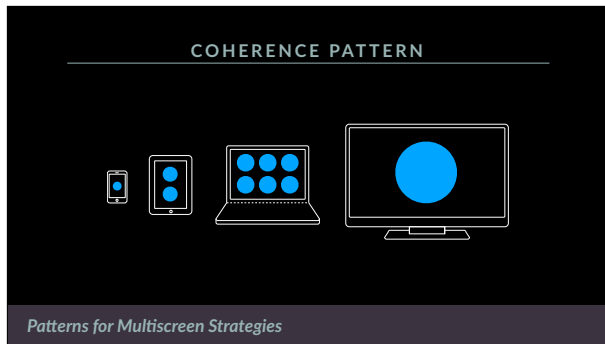
"A digital product or service looks and works coherently across devices. Features are optimized for specific device characteristics and usage scenarios."

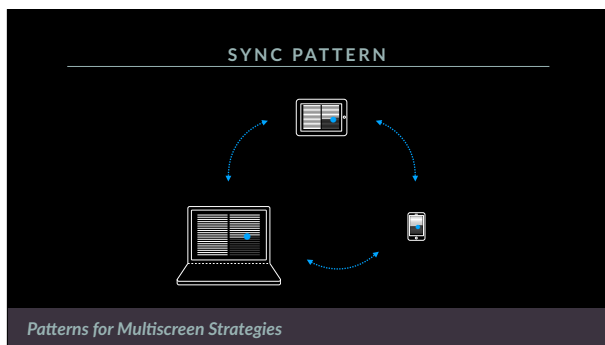http://previous.precious-forever.com/2011/05/26/patterns-for-multiscreen-strategies/

44

COHERENCE PATTERN

Evernote

Evernote is available on many different platforms, but the mobile version is optimized for photo input, audio input, and geo-tagging notes.
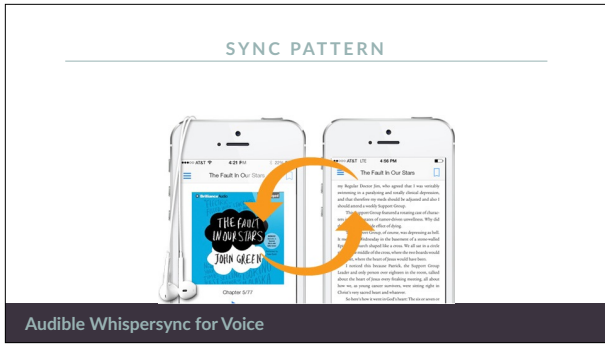
https://evernote.com
https://evernote.com/media/img/home/desktop/devices.png

45

SYNC PATTERN

Patterns for Multiscreen Strategies

"Devices are always in sync."

http://previous.precious-forever.com/2011/05/26/patterns-for-multiscreen-strategies/

SYNC PATTERN

Audible Whispersync for Voice

46

"Switch seamlessly between reading and listening with Whispersync for Voice."

Start an email on your phone and finish it on your laptop (OSX Yosemite).
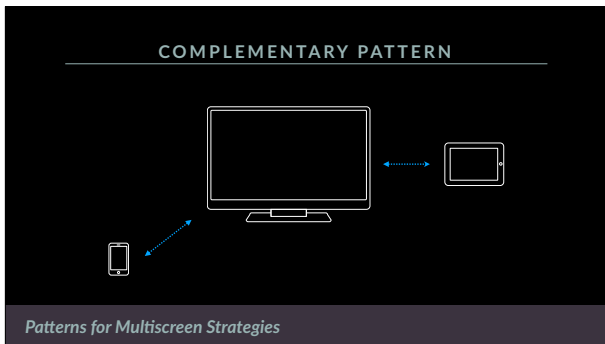
Dropbox/Box files synced on all devices.

Start and stop Netflix from any device.

http://www.audible.com/mt/wfs/

http://g-ecx.images-amazon.com/images/G/01/Audible/en_US/images/creative/amazon/amzn_featuredoc/KCP_FeatureDoc_DeviceSwap._CB350602784_.jpg

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COMPLEMENTARY PATTERN

Patterns for Multiscreen Strategies

47

"Devices are complementing each other."

http://previous.precious-forever.com/2011/05/26/patterns-for-multiscreen-strategies/

COMPLEMENTARY PATTERN

Scrabble for iPad
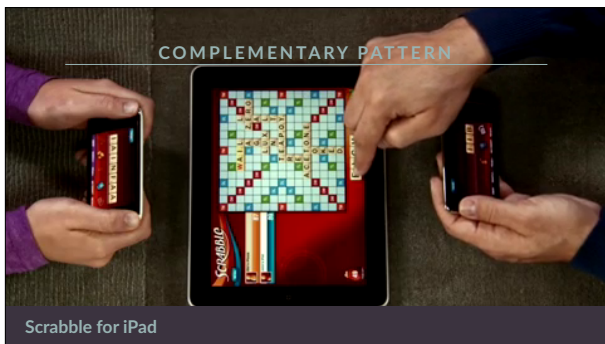
48

Phones hide a player's Scrabble tiles while the game board is on a tablet. Private and shared devices working in concert.

Perhaps there's new teaching and learning experiences that can leverage this pattern effectively. Students using their own devices alongside classroom devices as a means of engaging in a lesson.

http://www.youtube.com/watch?v=VdUznE15L30

**COMMUNITIES
OF PRACTICE**

49

You need UX designers and UI devs on your team to help address all of the complexities Chris described. So, how do we ensure within an environment like IU - in which users access systems created by different teams - that there's consistency and common standards across services? A necessary component is an overarching community of practice.

**A virtual team of people
in the same role
with similar expertise
across a number of teams**

50

The community of practice creates a cross-team group of staff that share the same role/area of expertise. In many cases, a scrum team has only a single UX designer and a single UI developer. Within Kuali Student, we structured this as single community of practice, given the close collaboration needed between the UX designer and the UI dev.

**Mentoring & learning
Consistency**

51

Staff members on different teams will have different skills and levels of experience.
Staff members on different teams will bring to light requirements that others may not have considered due to differing system requirements and user needs per project.

Consistency in design and code.
Standards and conventions should be consistent across teams.
Identical/similar functionality should behave the same way across services within a suite. Likewise, differences should be readily apparent to the user.

52

HOW DOES IT WORK?

Core/lead group
Weekly meetings
Open communication channels

Core group:
- provides guidance and vision concerning UX/UI issues.
- researches ideas, new technologies, best practices, user expectations, etc.
- assists in solving UX/UI issues identified within the agile teams.
- in collaboration with all members, develops, maintains, and enhances the style guide to be followed for UI development.

Group interaction
- Scheduled, recurring weekly meetings - Kuali Student holds two half-hour meetings each week.
  - Review screen designs - both wireframes and coded interfaces.
  - Discuss design standards.
- Frequent interaction through in-person discussions, shared group chats (Skype, Lynk, etc.), emails lists, whatever communication & collaboration technologies are most appropriate for your group

53

BENEFITS

Solve & share
Share & solve
Best practices & standards

Individually solve and collectively share.
Individually share and collectively solve.
Create better designs collectively than can be done in isolation.
And again, consistency across products.

54

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PROCESS EXPERIENCE ARCHITECTURE · UITS

STATEWIDE IT
OCTOBER 2014

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