The Power of Unknowns

Harnessing what you don't know to estimate project duration

John Keklak
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The Power of Unknowns

Harnessing what you don't know to *estimate project duration*

John Keklak
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About me

+ Software developer for >30 years
About me

+ Software developer for >30 years
+ Taught software engineering at BU for 9 years
About me

+ Software developer for >30 years
+ Taught software engineering at BU for 9 years
+ Still do a lot of software development
About me

+ Software developer for >30 years
+ Taught software engineering at BU for 9 years
+ Still do a lot of software development
+ Privately mentor aspiring software developers
About me

+ Software developer for >30 years
+ Taught software engineering at BU for 9 years
+ Still do a lot of software development
+ Privately mentor aspiring software developers

= Software Development Institute
Boston University

CS411 Software Engineering
BU CS411 Project Success

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The early years…

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Later years...

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Later years…

What changed?

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Focus on
Focus on UNKNOWNS
What's an "unknown"?
What's an "unknown"?

+ What the customer wants
What's an "unknown"?

+ What the customer wants
+ What the UI should look like
What's an "unknown"?

+ What the customer wants
+ What the UI should look like
+ How to do various technical things
What's an "unknown"?

+ What the customer wants
+ What the UI should look like
+ How to do various technical things

"Things developers don't know"

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What's an "unknown"?

For legacy projects, unknowns also include:

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What's an "unknown"?

For legacy projects, unknowns also include:

+ What the existing code does
What's an "unknown"?

For legacy projects, unknowns also include:

+ What the existing code does
+ What causes a particular bug
What's an "unknown"?

For example:
What's an "unknown"?

For example:

What I don't know is...
What's an "unknown"?

For example:

What I don't know is…

...how to save data in a MySQL database.
What's an "unknown"?

Unkowns can be abbreviated as…
What's an "unknown"?

Unknowns can be abbreviated as…

WIDKI…
What's an "unknown"?

Unknowns can be abbreviated as…

WIDKI…

"What I don't know is..."
What's an "unknown"?

Unknows can be abbreviated as…

WIDKI...

"What I don't know is..."
UNKNOWNNS are...

For example:

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UNKNOWNs are...

For example: 

WIDKI...
UNKNOWNs are...

For example:

WIDKI...

...how to save data in a MySQL database.

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My students were much more successful when they focused on unknowns!
Last year's talk provides an overview of unknowns
Last year's talk provides an overview of unknowns

+ Video of presentation is on YouTube
  -- search for "The Power of Unknowns"

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Last year's talk provides an overview of unknowns

+ Video of presentation is on YouTube
  -- search for "The Power of Unknowns"

+ PDF is on http://boston-spin.org
  -- look in "Library" page
Last year's talk provides an overview of unknowns

Email me for a PDF of a related article

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Estimating with Unknowns
Estimating with Unknowns

Get project assignment

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Estimating with Unknowns

Get project assignment

Identify what you don't know
Estimating with Unknowns

Get project assignment

Identify what you don't know

(there's lots; be as thorough as you can)
Estimating with Unknowns

Get project assignment

Identify what you don't know
(there's lots; be as thorough as you can)

Estimate the time needed to resolve each unknown
Estimating with Unknowns

Get project assignment

Identify what you don't know
(there's lots; be as thorough as you can)

Estimate the time needed to resolve each unknown
(decompose if you can't comfortably estimate)
Estimating with Unknowns

1. Get project assignment
2. Identify what you don't know
   (there's lots; be as thorough as you can)
3. Estimate the time needed to resolve each unknown
   (decompose if you can't comfortably estimate)
4. Add up your estimates

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How do you estimate the time required for an unknown?
How do you estimate the time required for an unknown?

+ Reduce an unknown to tasks
How do you estimate the time required for an unknown?

+ Reduce an unknown to tasks

+ Estimate time for each task
How do you estimate the time required for an unknown?

+ Reduce an unknown to tasks
+ Estimate time for each task
+ Add up the total time
How do you estimate the time required for an unknown?

An example:

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How do you estimate the time required for an unknown?

An example:

Unknown: "WIDKI how to send an email with a PHP script."
How do you estimate the time required for an unknown?

An example:

Unknown: "WIDKI how to send an email with a PHP script."

Tasks: ??
How do you estimate the time required for an unknown?

An example:

Unknown: "WIDKI how to send an email with a PHP script."

Tasks: ??

Time required for each task: ??

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Types of tasks for resolving unknowns

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Types of tasks for resolving unknowns

Talking to customers

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Types of tasks for resolving unknowns

Talking to customers

Iterating through UI designs
Types of tasks for resolving unknowns

Talking to customers

Iterating through UI designs "on paper"
Types of tasks for resolving unknowns

Talking to customers

Iterating through UI designs "on paper"

Creating lots of little programs to develop programming skills
Types of tasks for resolving unknowns

Talking to customers

Iterating through UI designs "on paper"

Creating lots of little programs to develop programming skills

(like how to send an email with a PHP script)
Types of tasks for resolving unknowns

Talking to customers

Iterating through UI designs "on paper"

Creating lots of little programs to develop programming skills

Getting fluent with existing code
Types of tasks for resolving unknowns

Talking to customers

Iterating through UI designs "on paper"

Creating lots of little programs to develop programming skills

Getting fluent with existing code

Expect to do a lot of such tasks
Types of tasks for resolving unknowns

***Does NOT involve***
Types of tasks for resolving unknowns

***Does NOT involve writing final product code***

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All tasks are intended for gathering knowledge
All tasks are intended for gathering knowledge

What does it mean to "gather knowledge"?
All tasks are intended for gathering knowledge

What does it mean to "gather knowledge"?

+ To learn what the customer wants
All tasks are intended for gathering knowledge

What does it mean to "gather knowledge"?

+ To learn what the customer wants
+ To learn what the UI should look like

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All tasks are intended for gathering knowledge

What does it mean to "gather knowledge"?

+ To learn what the customer wants
+ To learn what the UI should look like
+ To learn how code and data should be structured
All tasks are intended for gathering knowledge

What does it mean to "gather knowledge"?

+ To learn what the customer wants
+ To learn what the UI should look like
+ To learn how code and data should be structured
+ To learn how existing code and data are structured
So let's get started...
The project I have in mind

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The project I have in mind

A facelift for...

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The project I have in mind

A facelift for...

...our very own boston-spin.org web site!

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The project I have in mind

A facelift for...

...our very own **boston-spin.org** web site!

+ Give it a modern appearance

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The project I have in mind

A facelift for...

...our very own boston-spin.org web site!

+ Give it a modern appearance
+ Clean it up / reorganize

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The project I have in mind

A facelift for...

...our very own boston-spin.org web site!

+ Give it a modern appearance
+ Clean it up / reorganize
+ Add some features

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The project I have in mind

A facelift for...

...our very own **boston-spin.org** web site!

+ Give it a modern appearance
+ Clean it up / reorganize
+ Add some features
+ To be performed by **Boston SPIN members**!
No need for panic!

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No need for panic!

All we will do right now is…
No need for panic!

All we will do right now is…

…estimate the time required for the project.

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What should we do?

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What should we do?

Identify what we don't know

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What should we do?

Identify what we don't know
(there's lots; let's be as thorough as we can)

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Let's make a list...

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Let's make a list…

...of WIDKI's.

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Let's make a list of WIDKI's

Categories:

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Let's make a list of WIDKI's

Categories:

+ What the customer wants

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Let's make a list of WIDKI's

Categories:

+ What the customer wants / what features the website currently has
Let's make a list of WIDKI's

Categories:

+ What the customer wants / what features the website currently has / what should be added
Let's make a list of WIDKI's

Categories:

+ What the customer wants / what features the website currently has / what should be added
+ What the UI should look like

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Let's make a list of WIDKI's

Categories:

+ What the customer wants / what features the website currently has / what should be added
+ What the UI should look like
+ How code and data should be structured
Let's make a list of WIDKI's

Categories:

+ What the customer wants / what features the website currently has / what should be added
+ What the UI should look like
+ How code and data should be structured

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...over the course of the year.

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To be continued...

...over the course of the year.

To find out more, fill out a form and leave it with me.

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So why do you think unknowns produce reliable estimates?
So why do you think unknowns produce reliable estimates?

*Hint:*
So why do you think unknowns produce reliable estimates?

+ Hint: *Programmers spend about 2% of their time writing new code,*
So why do you think unknowns produce reliable estimates?

+ Hint: Programmers spend about 2% of their time writing new code, less than 10% of their time modifying existing code,
So why do you think unknowns produce reliable estimates?

+ Hint: Programmers spend about 2% of their time writing new code, less than 10% of their time modifying existing code, and 80+% of their time figuring out what the customer wants, what a UI should look like, how to organize data, how to structure code, how to use API's, how code should do things, how existing code works, and what is causing a particular bug.
So why do unknowns produce reliable estimates?

+ An estimate based on unknowns
So why do unknowns produce reliable estimates?

+ An estimate based on unknowns is based on what actually goes on in a software project.
Other benefits of unknowns we don't have time to get into tonight
Other benefits of unknowns we don't have time to get into tonight

+ Much more effective communication with developers and other stakeholders
Other benefits of unknowns we don't have time to get into tonight

+ Much more effective communication with developers and other stakeholders

+ Developers embrace the approach
Other benefits of unknowns we don't have time to get into tonight

+ Much more effective communication with developers and other stakeholders

+ Developers embrace the approach (enormously valuable!)
How to find out about these other benefits

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How to find out about these other benefits

I will give continuing talks on using unknowns,

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How to find out about these other benefits

I will give continuing talks on using unknowns, in particular on:

+ communicating with developers and customers

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How to find out about these other benefits

I will give continuing talks on using unknowns, in particular on:
+ communicating with developers and customers, and
+ managing projects.

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How to find out about these other benefits

I will give continuing talks on using unknowns, in particular on:
+ communicating with developers and customers, and
+ managing projects.

Email me at john@keklak.com to find out when and where.
To get involved in the Boston SPIN website facelift,
To get involved in the Boston SPIN website facelift, 
fill out a form
To get involved in the Boston SPIN website facelift, fill out a form or email me at john@keklak.com.
Thank you for your time and attention!
The Power of Unknowns

Questions?

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