

CS445 / ECE451 / CS645 / SE463
Software Requirements Specification & Analysis

Scope Creep



Ontario's EHR Project

In 2002, Ontario's Ministry of Health began a project on Electronic Health Records (EHR):

“implement a system that, in addition to providing an EHR for every Ontarian, includes a data network that stores EHR data and makes it quickly and securely available to health-care providers.”

Increased scope over the years:

- **Lab Info System** – allows hospitals, labs, health-care providers to share lab test orders and results
- **Registries** – databases on patient information, health-care provider information, patient consent
- **Diagnostic Imaging** – electronic access to diagnostic images and reports
- **Diabetes Registry** – compile patient data; electronic monitoring of adherence to best practices
- **Drug Information System** – prescribe drugs, view medication history; detect drug interactions
- **Integration Services** – integrates all EHR systems; quick access to all patient data
- **Physician eHealth** – expands system to family doctor offices, community health-care providers
- **Portals** – Web-based interface to patient's EHR
- **Consumer eHealth** – patients can access their HER on their personal computer
- **Panorama** – electronic records of immunizations at daycares, schools, public-health clinics
- **Chronic Disease Management** – electronic monitoring/recommendations of adherence to best practices
- **Technology Services** – databases, secure private network, encrypted Internet connections

2016 Annual Report of the Office of the Auditor General of Ontario,
Chapter 3 Electronic Health Records' Implementation Status, 2016

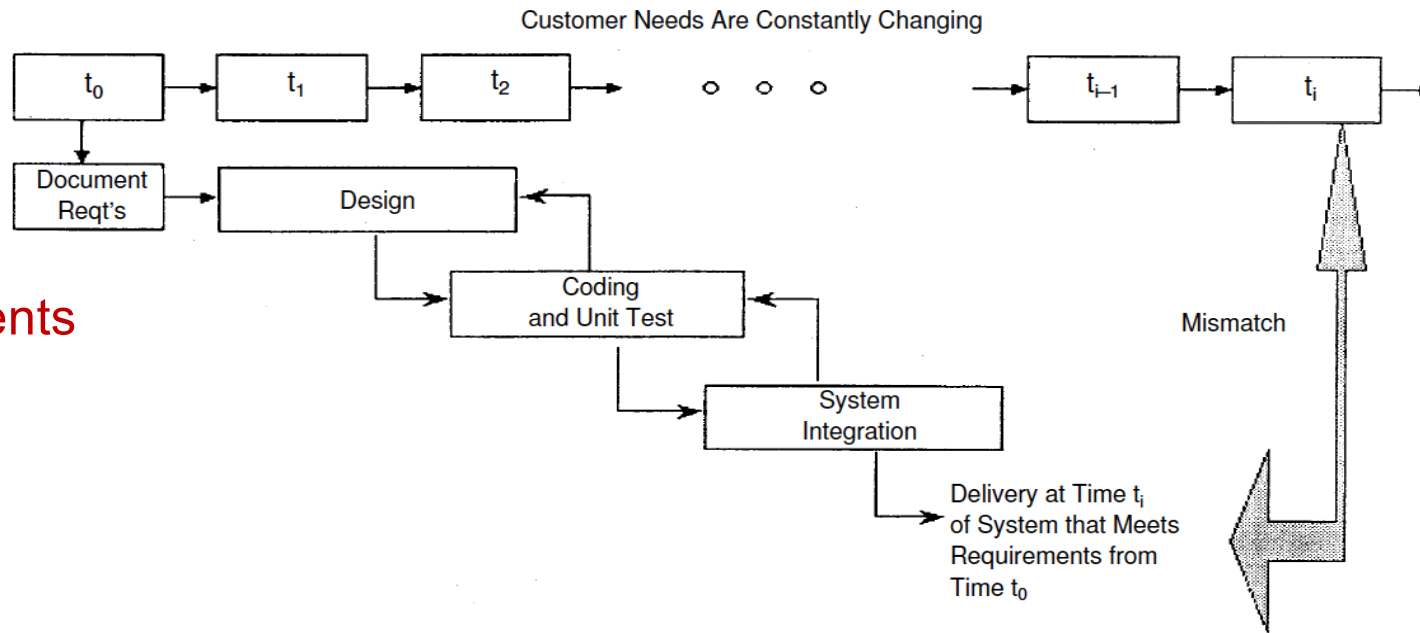
EHR Deficiencies

By 2015 (after 15 years of development)

- 85% of doctors used electronic records, but **most bought their own local systems.**
- 75% of doctors' local systems could access lab data from the network
- 0% of doctors' local systems could access diagnostic images from the network
- 13% of registered users in the GTA had accessed lab results or diagnostic images from a Web portal
- Only 40% of privately owned clinics used digital equipment, so only their images can be uploaded
- 3 (out of 4) regional diagnostic imaging repositories could view images from the other repositories. The other region needed to send and be sent CDs of images
- 2 (out of 3) regional hubs had working integrated views of data. In the other region, users needed to access data from multiple portals
- The drug database contained information for only 40% of Ontarians. Only 20% of community health centres in Ontario could access the drug database, and no plans to increase access to other 80%
- **2 (out of 5) of the Lab Systems key functions were operational (lab results submission and retrieval). Missing were lab test prescriptions, retrieval of prescriptions, and referral of lab tests to other sites**
- **76% of lab tests not uploaded to the Lab Systems database (missing data from 30 hospitals and 2 community labs whose systems needed to be upgraded; physician's offices; missing tests not covered by OHIP)**
- 60% of Patient history records uploaded in the GTA. In the other two regions, 15%-30% of patient history records had been uploaded
- Usage varied by region: 2% to 36% of registered users had actually used the system

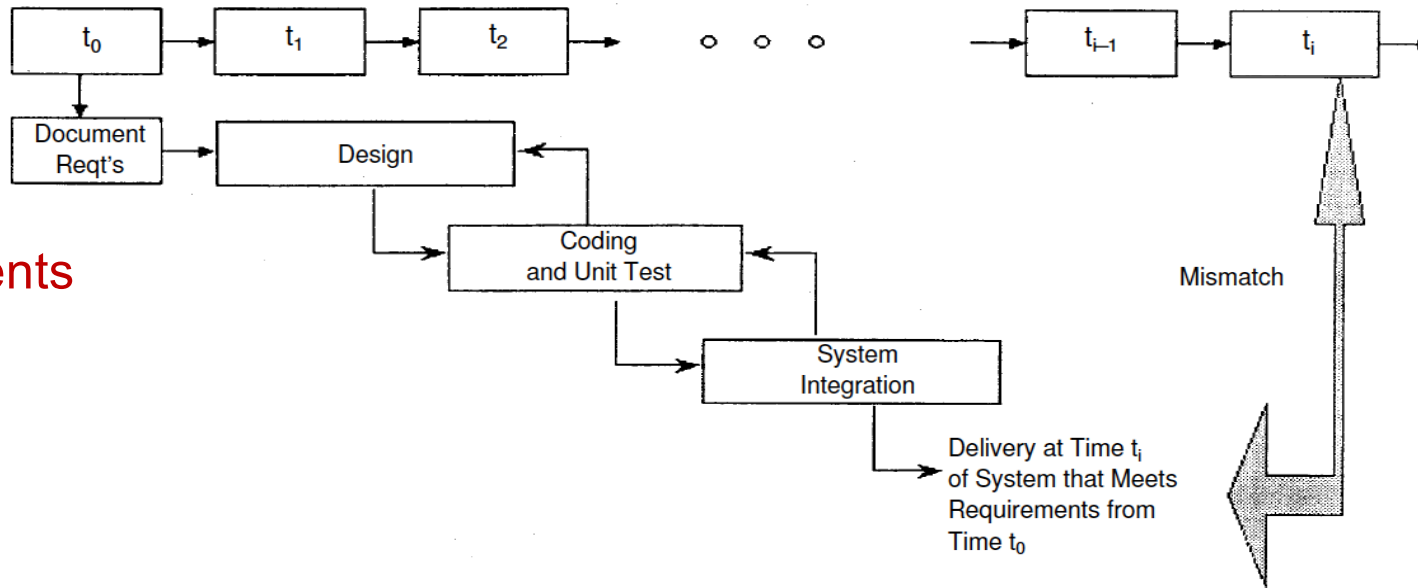
Changing Requirements

Requirements
Mismatch



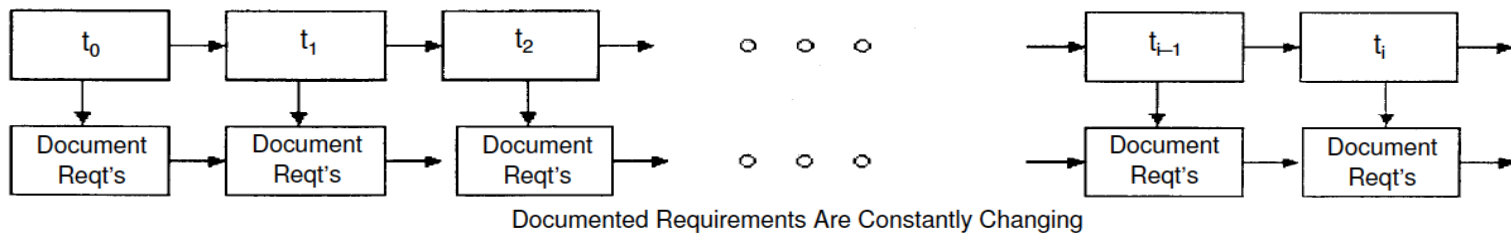
Changing Requirements

Customer Needs Are Constantly Changing



Requirements
Mismatch

Customer Needs Are Constantly Changing



Analysis
Paralysis

Managing Scope Creep

Three aides for dealing with changing requirements

1) Requirements baseline

- Subsequent changes managed through change-control process
- Rough guide: limit changes to $< 0.5\%$ per month (6% per year)

2) Business requirements

- Used as a test for evaluating and admitting new requirements

Managing Scope Creep

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1) Requirements baseline

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2) Business requirements

- Used as a test for evaluating and admitting new requirements

3) Project scope

Scope in Agile Projects

In agile projects, scope creep is addressed by deferring new requirements requests to future releases.

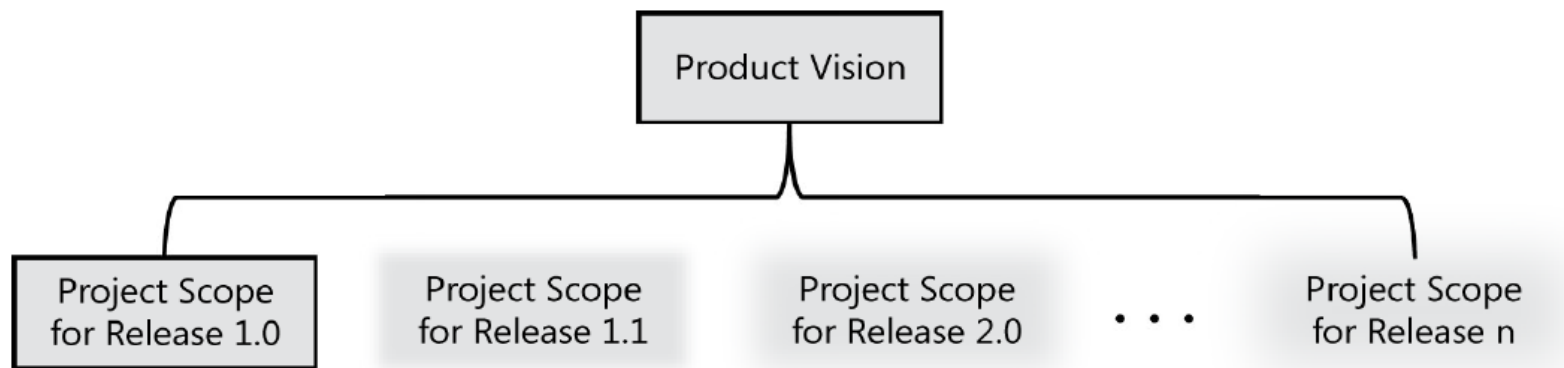
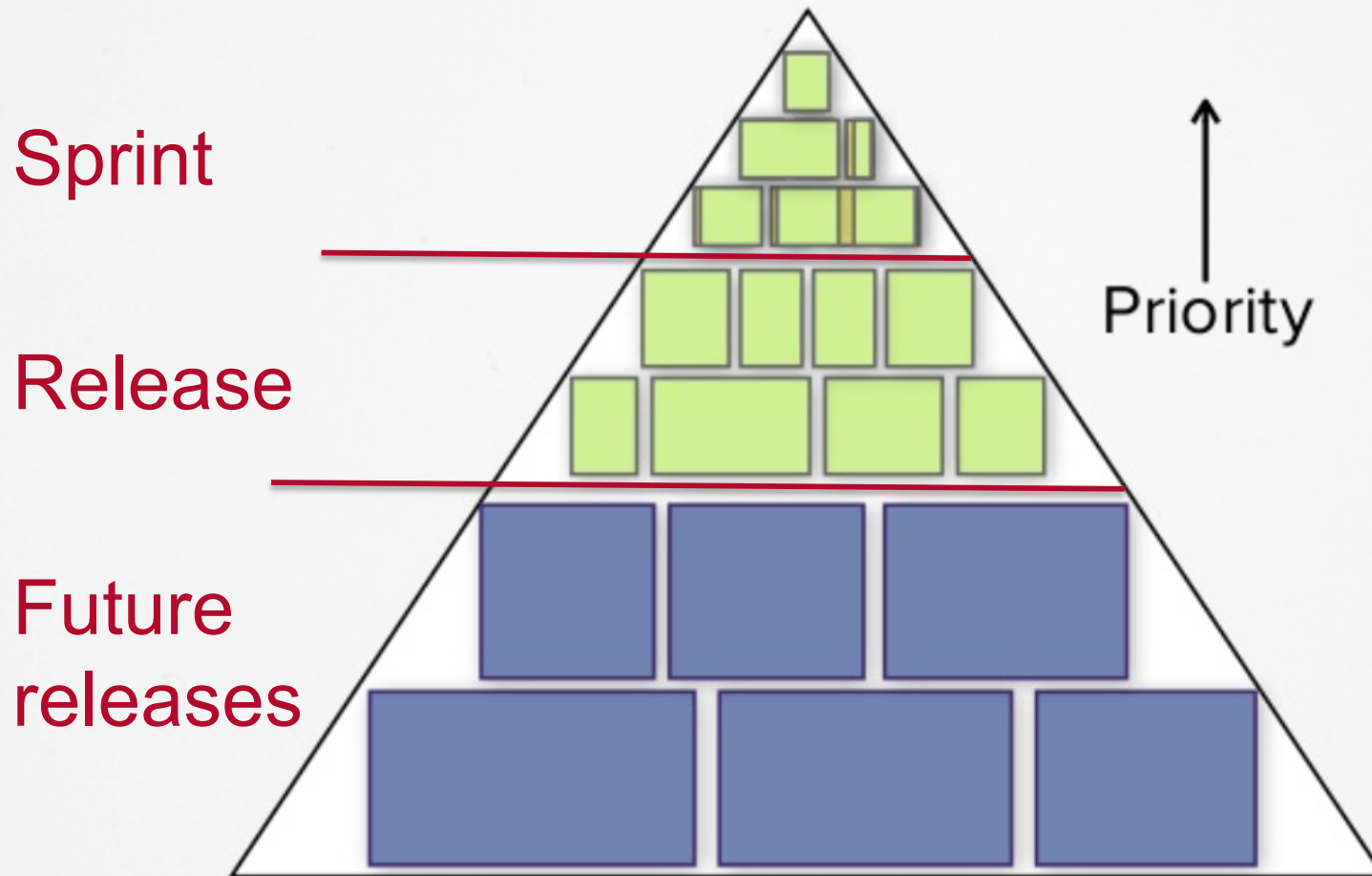


FIGURE 5-1 The product vision encompasses the scope for each planned release, which is less well defined the farther out you look.

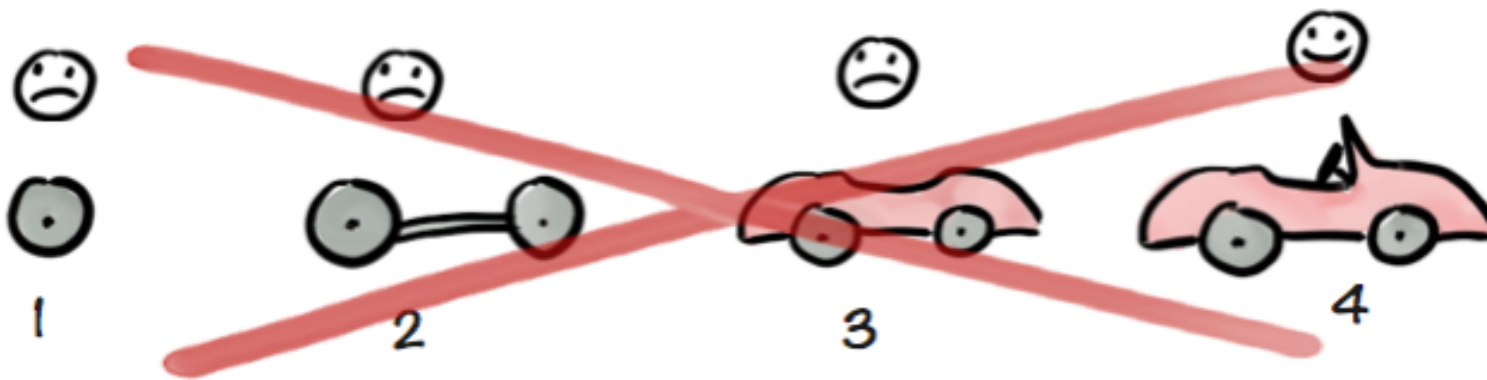
Karl E. Wieggers and Joy Beatty. *Software Requirements, 3ed.* Microsoft Press, 2013.

The product backlog iceberg

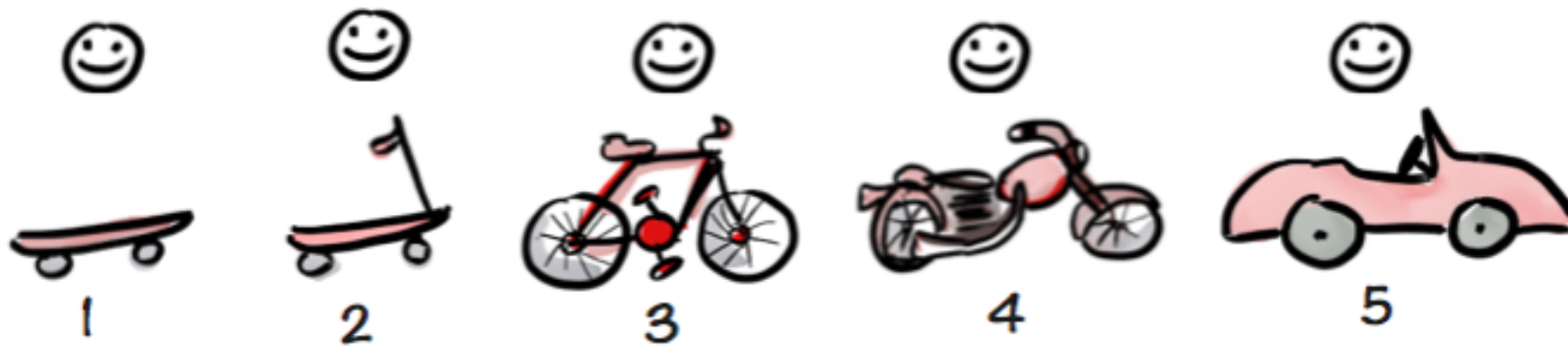


Minimum Viable Product

Not like this....



Like this!



References

Karl E. Wieggers and Joy Beatty. *Software Requirements, 3ed.* Microsoft Press, 2013.

- Chapter 5: “Establishing the business requirements”
- Chapter 28: “Change happens”



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