SWOT-oriented comments from a group of stakeholders

- Shawn Swanby, Ednetics
- Nick Smoot
- Steve Garske, Kootenai Health
- Grant Bishop, 14Four
- Seth Samuels, Kochava

**Opportunities**

**Opportunity**: There is a demand for employees, regardless of role, who possess basic understanding/baseline knowledge of how software is developed, configured, and operated, especially how to customize software to meet unique business needs (Source: Shawn Swanby, Ednetics).

**Opportunity**: There is a demand for employees who possess project management and teamwork/soft skills (Sources: Shawn Swanby, Ednetics; Steve Garske, Kootenai Health).

**Opportunity**: There is demand by Ednetics for females in (systems engineers, installation technicians, network engineers, voice engineers?) positions (Source: Shawn Swanby, Ednetics).

**Opportunity/Threat**: Women are not applying (Source: Shawn Swanby, Ednetics).

**Opportunity/Threat**: There is a perception among employers that programs must start with young, pre-college students (Source: Shawn Swanby, Ednetics) and that “young people” need to participate (Source, Nick Smoot).

**Opportunity**: The cost of living here is so much lower than in Seattle (Source: Shawn Swanby, Ednetics).

**Opportunity**: The quality of life is so much higher here than in Seattle (Source: Shawn Swanby, Ednetics).

**Opportunity**: Given (some, many?) healthcare organizations have multiple electronic medical record systems, there is an increased demand from healthcare organizations for employees with “integration skills” (Source: Steve Garske, Kootenai Health)

**Opportunity**: There is a demand for dual discipline expertise, such as registered nurses with informatics capabilities.

**Opportunity/Threat**: Kootenai Health partners with NIC’s informatics program currently.

**Opportunity**: Employers value employees who “can get up to speed quicker” because of adaptability and the ability to “learn new technologies faster” (Source: Grant Bishop, 14Four).

**Opportunity**: There is a perception among employers that employees with bachelor of science degrees and specific technology experience can get up to speed quicker than someone who is self-taught in one specific programming language or other technology (Source: Grant Bishop, 14Four).

**Opportunity**: There is an interest among employers for employees who have completed curriculum that includes emphases on mobile devices, informatics, and user interface design (Source: Grant Bishop, 14Four).

**Opportunity**: There is a demand for college graduates with computer science degrees (Source: Seth Samuels, Kochava).

**Opportunity**: There is a demand for computer science graduates who have evidence of a passion for software (e.g., extracurricular efforts - GitHub code, projects with others in addition to school requirements).

**Opportunity**: Seth did not say this, but possibly work experience in the field while attending school would also show initiative (Source: Larry).

**Threats**

**Threat/Opportunity**: There is a perception that programs must start with young, pre-college students (Source: Shawn Swanby, Ednetics) and that “young people” need to participate (Source, Nick Smoot).

**Opportunity/Threat**: Women are not applying (Source: Shawn Swanby, Ednetics).

**Threat**: Salaries in Idaho are 30-40% less than in Seattle (Source: Shawn Swanby, Ednetics).

**Threat/Opportunity**: Kootenai Health partners with NIC’s informatics program currently.

**Strengths**

**Strength**: UI has a cybersecurity focus (Source: Karen)

**Strength**: Robotics (Source: Nick)
### External Analysis

#### Applied Research-Oriented Opportunities
- A niche (TBD)
- Data management
- Analytics
- Remote sensors
- Research dollars
- Private data available
- Statistical ignorance
- People are drowning in data
- London-Cholera-Outbreak-type problems (4th paradigm)
- Good timing

#### Basic Research-Oriented Opportunities
- A niche (TBD)
- Demand for basic research

#### Employer Demand Opportunities
- A niche (TBD)
- Employees, in all roles, who possess basic knowledge of how software is developed, configured, and operated, esp how to customize software to meet unique business needs
- Project management and teamwork/soft skills
- Women are not applying
- There is an increased demand from healthcare organizations for employees with “integration skills” (e.g., registered nurses with informatics capabilities)
- Employees who “can get up to speed quicker” because of adaptability and the ability to “learn new technologies faster”
- Employees who with knowledge of mobile devices, informatics, and user interface design
- Computer science graduates who have evidence of a passion for software (e.g., extracurricular efforts - GitHub code, projects with others in addition to school requirements)
- Incoming students want interdisciplinary focus

#### Threats
- Kootenai Health partners with NIC’s informatics program currently.
- Google is already doing “it” (i.e., “non-niche”)
- Revenue sources are focused (e.g., government, not industry)
- Incoming students want a job
- Students have negative reaction to “data science” nomenclature
- Good timing

### Internal Analysis

#### University of Idaho Strengths
- Experience serving niches
- Passion for basic research
- Expertise with basic research
- Expertise in: security, visualization, stat, AI, data management
- History of university-wide programs and collaboration
- Adv. Bd Relationships
- Communications is the “new” stat
- University Structure
- Precedence for “double counting” students
- D.S.S.
- Size
- Experience serving a niche
- Culture of collegiality and passion
- Complexity/GST/NW Thinking
- Faculty turnover
- Executive support
- This group – i.e., the Computing and Informatics Task Force
- Humanities and Philosophy Dept. part of new center

#### University of Idaho Weaknesses
- Don’t understand industry
- Discipline pushback
- “We’ve never done it that way.”
- “We tried it and it didn’t work.”
- Faculty turnover
- G.S. not universal point of view
- Silos
- Resistance top math
- Humanities faculty
- Institutional inertia

### Actions:
- College of Science Fiction
- Do Basic Research
General Questions to help think about how to use Strengths to go after Opportunities

1. What are the areas of computing that have student/employer and/or (basic and applied) research demand that we (or anyone else) are not currently addressing well?… i.e., what are the opportunities (that we want to pursue)?

2. How could we best administer (address, capture, pursue) this opportunity in the near term and in the long term? (What strengths will we use and what actions will we take to pursue the opportunities). Describe the entity.

3. What "niche" would this entity (serve) occupy that would give it a competitive advantage and justify its existence?

4. What advantages would accrue from creating such an entity (for the purposes of pursuing the opportunities)?

5. What are the disadvantages?

<table>
<thead>
<tr>
<th>STRENGTHS (S)</th>
<th>WEAKNESSES (W)</th>
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<tbody>
<tr>
<td>• Experience serving niche markets</td>
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<tr>
<td>• Expertise in security</td>
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<tr>
<td>• Expertise in basic research</td>
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<td>• Passion for basic research</td>
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<tr>
<th>OPPORTUNITIES (O)</th>
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<tr>
<td>Unmet need by industry for solving &quot;a niche&quot; set of security problems</td>
<td>We are going to use experience serving niches, expertise in security and basic research and passion for basic research to go after the unmet need by industry for help solving the niche set of security problems by taking THIS ACTION (i.e., creating an entity).</td>
<td>Strategies that take advantage of opportunities by overcoming weaknesses.</td>
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<th>THREATS (T)</th>
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<td>Strategies that use strengths to avoid threats.</td>
<td>Strategies that minimize weaknesses and avoid threats.</td>
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## Teaching-Oriented Example (from May 7, 2015 Meeting)

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<td>• Computer Science Expertise (College of Engineering)</td>
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<td>• Statistics Expertise (College of Science)</td>
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<td>• Information Systems Expertise (College of Business and Economics)</td>
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<tr>
<td>• Experience with a successful, unique cross-disciplinary program that draws students and employers to UI (i.e., Virtual Technology &amp; Design)</td>
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<td>• Unmet need by employers for graduates with the data-management skills to help manage the process of “ingesting the data, cleaning the data and analyzing the data”, which includes an “analytics side” and a “big data side”</td>
<td>We will draw upon our expertise in data management, statistics and programming and our experience with the VTD program, to go after the unmet need in skilled data-management graduates by creating (e.g., a School of Information) that will deliver a (e.g., B.S. in Informatics).</td>
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