

## An Inventory of Skills for Entry-level IT Employees

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DISCIPLINE DEPENDENT SKILLS			
IT management			
I.	Short title		Description
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1	<a href="#">Big Data analysis &amp; decision support(BI)</a>		<b>Ability to design and create a data warehouse and to use its contents in order to support strategic decision making. (Should I add a Data Collection skill to account for Internet of Things or include IoT as part of Infrastructure design?)</b>
	1	Dimensional databases	1 Ability to explain the differences between a relational and a dimensional database.
	2	Data warehouses	2 Ability to create a dimensional database to implement a data warehouse to support decision making.
	3	Data extraction and cleanup (ETL)	3 Ability to use tools and techniques to extract data from diferent sources and to improve data quality.
	4	Data transformation and load (ETL)	4 Ability to use tools and techniques to perform data transformation and to populate a dimensional database.
	5	User interface for decision support	5 Ability to create a user interface to allow management to access and analyze data to support decision making.
2	<a href="#">IT governance</a>		<b>Ability to identify, explain and analyze aspects regarding data center administration, like location, organizational structure, functions, resources, etc.</b>
	6	Data Center functions	6 Ability to identify typical data center functions.
	7	Data Center location	7 Ability to identify usual locations for data centers in organizations.
	8	Data Center organization	8 Ability to identify typical organizational structures for data centers in organizations.
	9	Centralization vs decentralization	9 Ability to evaluate the advantages and disadvantages of centralized versus decentralized data center operations.
	10	Human resources & career paths	10 Ability to identify the positions and career paths usually found in a data center.
	11	Cloud computing	11 Ability to analyze major considerations of using cloud computing to procure data center services, like IaaS, PaaS, and SaaS.
	12	Outsourcing	12 Ability to analyze major considerations related to outsourcing data center operations.
	13	Negotiation and procurement of IS/IT resources	13 Ability to explain the process and considerations to negotiate and procure IS/IT resources and services for the organization.
	14	IT control and governance frameworks	14 Ability to explain the role of IT control and governance frameworks (COBIT, ITIL, etc.) in managing the organizational IT infrastructure.
3	<a href="#">Regulatory, control and security framework</a>		<b>Ability to explain and analyze regulatory, control and security framework of information systems. Also includes the ability to implement some control and security measures.</b>
	15	Risk identification	15 Ability to identify risks associated to the IS function in an organization. (May include the use of risk assessment frameworks, like COSO and COBIT.)
	16	Risk assessment	16 Ability to evaluate the probability of the occurrence of risks, as well as their impact. (May include the use of risk assessment frameworks, like COSO and COBIT.)
	17	IS controls	17 Ability to identify controls that can reduce the probability of risk occurrence.
	18	Assessment of existing controls	18 Ability to evaluate the effectiveness of existing controls to detect and avoid risks.
	19	Recovery measures	19 Ability to identify measures to recover IS/IT operations when interrupted.
	20	Disaster recover plans	20 Ability to prepare a disaster recovery plan, consisting of the identification and evaluation of risks, the identification and evaluation of controls to avoid those risks, and the identification of meassures to recover from interruptions.
	21	Regulatory environment	21 Ability to analyze the impact of the regulatory enviroment upon the IS field and IS professionals.
	22	Application controls	22 Ability to identify, design and implement application controls in the design and implementation of systems.
	23	General controls	23 Ability to identify and design general controls, particularly in the design and implementation of technological infrastructure.

<b>4</b>	<a href="#">Project management</a>	<b>Ability to create a plan to implement an IS project and to control the execution of the plan.</b>
<b>24</b>	Project selection	<b>24</b> Ability to analyze the suitability of several projects to be implemented.
<b>25</b>	Scope management	<b>25</b> Ability to identify the tasks that form the scope of a project, as well as their dependencies.
<b>26</b>	Time and cost management	<b>26</b> Ability to prepare time and cost estimates for the tasks that compose the scope of a project.
<b>27</b>	Communications management	<b>27</b> Ability to identify means for keeping stakeholders informed about all aspects of the project.
<b>28</b>	Risk management	<b>28</b> Ability to identify risks related to a project, and to evaluate the probability and impact of each one of them.
<b>29</b>	Quality management	<b>29</b> Ability to identify quality measures for the deliverables, as well as the processes, of a project.
<b>30</b>	Human resources management	<b>30</b> Ability to identify the human resources necessary to perform the tasks in a project.
<b>31</b>	Procurement management	<b>31</b> Ability to analyze when to use vendors to procure project resources, to negotiate procurements and to control the performance of these vendors in the project.
<b>32</b>	Stakeholder management	<b>32</b> Ability to identify and involve all people with interest in the project, and to evaluate and take care of their needs and expectations.
<b>33</b>	Integration management	<b>33</b> Ability to integrate all tasks involved in a project into a comprehensive project plan.
<b>34</b>	Project management tools	<b>34</b> Ability to use a project management tool to prepare and control the project plan.
<b>35</b>	Resistance to change	<b>35</b> Ability to identify the factors that provoke resistance to change and ways to deal with them.

<b>II. Analysis &amp; logical design</b>		
<b>#</b>	<b>Short title</b>	<b>Description</b>
<b>5</b>	<a href="#">Business process analysis</a>	<b>Ability to collect, organize and analyze data from an operation in order to understand it and to support the design of a new way to perform it.</b>
<b>36</b>	Data collection	<b>36</b> Ability to collect data about current operations through several approaches (interviews, observation, etc.).
<b>37</b>	Data organization	<b>37</b> Ability to organize data through several techniques (narratives, tables, diagrams, etc.)
<b>38</b>	Problem identification	<b>38</b> Ability to identify problems in the operation being analyzed.
<b>39</b>	Opportunity identification	<b>39</b> Ability to identify opportunities not being taken care of through current operations.
<b>6</b>	<a href="#">Business process modeling /design</a>	<b>Ability to design a new way to perform an operation in order to avoid current problems and to take advantage of opportunities.</b>
<b>40</b>	Process diagramming techniques	<b>40</b> Ability to apply process diagramming techniques when documenting processes.
<b>41</b>	Process diagramming tools	<b>41</b> Ability to use process diagramming tools when documenting processes.
<b>42</b>	Domain specific knowledge	<b>42</b> Ability to apply basic rules related to the particular business domain being redesigned.
<b>7</b>	<a href="#">Requirements definition</a>	<b>Ability to determine, and document through system requirements, the functionality that a system must provide in order to make it suitable to support an operation.</b>
<b>43</b>	Types of requirements	<b>43</b> Ability to identify different type of requirements, with emphasis on functional requirements.
<b>44</b>	New way to operate	<b>44</b> Ability to integrate a group of requirements into a new way to perform an operation.
<b>45</b>	Requirements report	<b>45</b> Ability to integrate system requirements into a meaningful report which can be used to design a new system or to procure one.

<b>III. Enterprise systems</b>		
<b>#</b>	<b>Short title</b>	<b>Description</b>

<b>8</b>	<a href="#">Enterprise Resource Planning (ERP)</a>	<b>Ability to explain how ERP systems work and to use these systems to perform basic organizational processes.</b>
<b>46</b>	Main characteristics	<b>46</b> Ability to mention the main characteristics of ERP systems.
<b>47</b>	Functionality provided	<b>47</b> Ability to explain the functionality provided by ERP systems.
<b>48</b>	ERP organizational processes	<b>48</b> Ability to use an ERP system to perform basic organizational processes.
<b>9</b>	<a href="#">Customer Relationship Management (CRM)</a>	<b>Ability to explain how CRM systems work and to use these systems to perform basic organizational processes.</b>
<b>49</b>	Main characteristics	<b>49</b> Ability to mention the main characteristics of CRM systems.
<b>50</b>	Functionality provided	<b>50</b> Ability to explain the functionality provided by CRM systems.
<b>51</b>	CRM organizational processes	<b>51</b> Ability to use a CRM system to perform basic organizational processes.
<b>10</b>	<a href="#">Supply Chain Management (SCM)</a>	<b>Ability to explain how SCM systems work and to use these systems to perform basic organizational processes.</b>
<b>52</b>	Main characteristics	<b>52</b> Ability to mention the main characteristics of SCM systems.
<b>53</b>	Functionality provided	<b>53</b> Ability to explain the functionality provided by SCM systems.
<b>54</b>	SCM organizational processes	<b>54</b> Ability to use an SCM system to perform basic organizational processes.
<b>11</b>	<a href="#">E-Business</a>	<b>Ability to explain how E-Business systems work and to use these systems to perform basic organizational processes.</b>
<b>55</b>	Main characteristics	<b>55</b> Ability to mention the main characteristics of E-Business systems.
<b>56</b>	Functionality provided	<b>56</b> Ability to explain the functionality provided by E-Business systems.
<b>57</b>	E-Business organizational processes	<b>57</b> Ability to use an E-Business system to perform basic organizational processes.

IV.	Implementation	
#	Short title	Description
<b>12</b>	<a href="#">Systems procurement (Sourcing)</a>	<b>Ability to evaluate system alternatives based on system requirements, and to recommend one of the alternatives. It includes all kinds of systems, both internally developed or purchased (ERPs, CRMs, SCMs, Ebusiness, etc.). (It could be renamed "Systems sourcing".)</b>
<b>58</b>	Evaluation criteria	<b>58</b> Ability to determine the criteria to be used in the evaluation of proposals.
<b>59</b>	Procurement conditions	<b>59</b> Ability to determine special conditions related to the acquisition of the system.
<b>60</b>	RFP preparation	<b>60</b> Ability to integrate system requirements and procurement conditions into a Request for proposals (RFP).
<b>61</b>	Proposal evaluation	<b>61</b> Ability to evaluate proposals by scoring each one of them based on the evaluation criteria.
<b>62</b>	Contract negotiation	<b>62</b> Ability to identify and negotiate main clauses to be included in the contract to procure a system.
<b>13</b>	<a href="#">Systems deployment</a>	<b>Ability to perform the tasks involved in the implementation of a system, so as to make it ready to start a live operation. Includes all kinds of systems (ERPs, CRMs, SCMs, Ebusiness, etc.), both internally developed or purchased.</b>
<b>63</b>	Systems configuration	<b>63</b> Ability to create and enter the configuration parameters necessary for a system to function properly, like account numbers, late payment charges, interest rates, etc.
<b>64</b>	Integration testing	<b>64</b> Ability to create comprehensive testing cases, perform the corresponding tests, evaluate and document results, control the modifications, etc.
<b>65</b>	Data conversion	<b>65</b> Ability to perform and control data conversion tasks, like file exporting/importing, data cleanup, and data collection/data entry control.
<b>66</b>	Procedure design	<b>66</b> Ability to prepare procedures to document transaction flow and processing.
<b>67</b>	User training	<b>67</b> Ability to design, create and perform trainings on how to use a new system.

V.		Physical design	
#	Short title	Description	
14	<a href="#">Physical systems design</a>	<b>Ability to physically design system components like the database, screens/pages, reports, and the programs to implement the business rules. It also includes documentation for each component, as well as for the whole system.</b>	
68	Database design	68	Ability to design a normalized database to support applications. (Database processing and database administration are included under other categories.)
69	Screen or web page design	69	Ability to design screens or web pages to enter data and to display results.
70	Report design	70	Ability to design generic reports (instead of special forms).
71	Form design	71	Ability to design special forms, like invoices, checks, dunning notices, account statements, etc.
72	Process design	72	Ability to design batch and/or interactive processes to implement process-related business rules.
73	Design documentation	73	Ability to document the individual system components and to integrate these documents into a full system documentation.
15	<a href="#">Infrastructure design</a>	<b>Ability to design LANs, WANs, SANs, server farms, etc., to support the operation of a system. Includes design documentation and basic software installation. (It does not include hardware or cabling installation tasks. Cloud computing is included under IT Governance.)</b>	
74	LAN components	74	Ability to identify the components of a LAN and to specify the main characteristics of these components.
75	LAN design	75	Ability to integrate all LAN components into a full LAN design, in order to support the operation of an application.
76	WAN components	76	Ability to identify the components of a WAN and to specify the main characteristics of these components.
77	WAN design	77	Ability to integrate all WAN components into a full WAN design, in order to support the operation of an application.
78	SAN components	78	Ability to identify the components of a SAN and to specify the main characteristics of these components.
79	SAN design	79	Ability to integrate all SAN components into a full SAN design, in order to support the operation of an application.
80	Server farm components	80	Ability to identify the components of a server farm and the main characteristics of these components.
81	Server farm design	81	Ability to integrate all server farm components into a full server farm design, in order to support the operation of an application.
82	Specialized I/O devices	82	Ability to identify special I/O devices, like IoT devices, and to integrate them into an infrastructure design.
83	Resource virtualization	83	Ability to describe the benefits of virtualizing resources like servers and stations.
84	Design documentation	84	Ability to document the infrastructure design using a network diagramming tool.
85	Regulations, standards & codes	85	Ability to apply regulations, standards, and codes when designing infrastructure. For example, electrical codes, firemen codes, IEEE standards, etc.

VI.		Programming	
#	Short title	Description	
16	<a href="#">Programming system components</a>	<b>Ability to create and integrate main systems components, like databases, screens, reports, forms, procedures, and services, using a development tool. (Unit testing is included under Programming Fundamentals.) (Equivalent to "Intermediate programming")</b>	
86	Database creation and processing	86	Ability to create a normalized database, and to process it, using SQL statements. (Database design and database administration are included under other skill sets.)
87	Screen design and creation	87	Ability to create screens to enter and display database contents.
88	Report design and creation	88	Ability to create reports about database contents.
89	Interactive database processing	89	Ability to create interactive dialogs to add, delete, modify, and query database contents using procedural tools.
90	Batch processes	90	Ability to create programs or procedures to process groups of records.

	<b>91</b>	Component documentation	<b>91</b>	Ability to document a program, both internally (through remarks, standards and significant names) and externally (through a written document).
	<b>92</b>	Advanced code structuring and sharing	<b>92</b>	Ability to structure and share code through more advanced techniques, like classes, APIs, triggers or stored procs.
<b>17</b>	<a href="#">Web and mobile programming</a>		<b>Ability to create new programs using web and mobile development tools. (Unit testing and program documentation is included under Programming Fundamentals.)</b>	
	<b>93</b>	Server interactions	<b>93</b>	Ability to minimize server interactions when validating and processing data, so as to reduce server overload.
	<b>94</b>	Web page design	<b>94</b>	Ability to design and create web pages using HTML, tables, cascading style sheets (CSS), and web-server controls.
	<b>95</b>	State management	<b>95</b>	Ability to preserve the status of a program between page postbacks.
	<b>96</b>	Web services (Service Oriented Architecture)	<b>96</b>	Ability to describe the function of web services to support the interoperability between application components in a network.
	<b>97</b>	Mobile applications	<b>97</b>	Ability to create basic mobile applications.
<b>18</b>	<a href="#">Programming fundamentals</a>		<b>Ability to create new programs, and to modify existing programs, using object-oriented, visual tools. (Includes unit testing and program documentation.)</b>	
	<b>98</b>	Steps in program development	<b>98</b>	Ability to perform all steps in program development, like problem definition, program design, program coding, program testing and program documentation.
	<b>99</b>	Basic programming constructs	<b>99</b>	Ability to declare and use variables/constants/arrays, and to perform basic operations, like input/output, arithmetic, loops, conditions, etc.
	<b>100</b>	Basic code structuring techniques	<b>100</b>	Ability to structure and share code through basic techniques like functions, and procedures.
	<b>101</b>	Basic file processing	<b>101</b>	Ability to create and process text or sequential files.
	<b>102</b>	Programming standards	<b>102</b>	Ability to use naming conventions, internal documentation, standard variable definitions and other organizational standards.
	<b>103</b>	Program testing	<b>103</b>	Ability to test a program and to document the test results. (It is really "Unit testing".)
	<b>104</b>	Basic program documentation	<b>104</b>	Ability to document a program internally (through remarks, standards and meaningful names). (External documentation through a written document is included elsewhere.)
	<b>105</b>	Program deployment /publishing	<b>105</b>	Ability to deploy or publish new or modified programs, together with their software infrastructure requirements.

VII. IT operations & maintenance				
#	Short title		Description	
<b>19</b>	<a href="#">Infrastructure operations &amp; maintenance</a>		<b>Ability to perform basic operational and maintenance tasks on servers, stations, printers, and communications equipment.</b>	
	<b>106</b>	Physical requirements	<b>106</b>	Ability to identify the physical, electrical and air conditioning requirements for properly operating a technological infrastructure.
	<b>107</b>	Physical controls	<b>107</b>	Ability to identify the most common physical controls related to the operation of an infrastructure (access control, smoke and fire detectors, humidity control, etc.).
	<b>108</b>	Warranty and service agreements	<b>108</b>	Ability to identify the different types of warranty and service agreements available to support infrastructure operations, as well as their main characteristics.
	<b>109</b>	Infrastructure operating procedures	<b>109</b>	Ability to explain the importance of following operating procedures when operating technological infrastructures.
	<b>110</b>	Basic operational tasks	<b>110</b>	Ability to perform basic operational tasks, like managing users, access rights, and devices, and performing basic troubleshooting.
	<b>111</b>	Software installation /reinstallation	<b>111</b>	Ability to install, reinstall and configure infrastructure related software, like the operating system, web services, device drivers, etc. (This skill may be moved to Infrastructure design.)
<b>20</b>	<a href="#">Applications maintenance</a>		<b>Ability to perform program fixes and minor application enhancements, and to control this process. (Testing and documentation of fixes is included under Programming Fundamentals or Programming System Components.)</b>	

	<b>112</b>	Version & modification control	<b>112</b>	Ability to keep track of modifications performed to a program and to control its different versions. (Other Applications Maintenance related skills are included under Programming Fundamentals or Programming System Components. )
<b>21</b>	<a href="#">Database administration</a>		<b>Ability to explain how basic database administration functions work (like fine tuning/restructuring, security/backup/recovery, and concurrent access). (Database design is included under Physical systems design. Database creation and processing is included under Programming system components.)</b>	
	<b>113</b>	Fine tuning and restructuring	<b>113</b>	Ability to identify strategies to improve database access and processing, like indices, alternate paths, caching, etc.
	<b>114</b>	Security, backup and recovery	<b>114</b>	Ability to identify different security, backup and recovery alternatives available for databases.
	<b>115</b>	Privacy	<b>115</b>	Ability to identify ways to control the access to a database.
	<b>116</b>	Concurrent access	<b>116</b>	Ability to analyze the implications of concurrent access to the database, as well as strategies to deal with it.
<b>22</b>	<a href="#">User support /CRM/URM</a>		<b>Ability to perform basic user support activities, mostly technical (i.e. computers, printers, Internet access, and office applications), but also regarding functional operations (i.e. industry and business rules). Includes some level of CRM (Customer relationship management) or URM (User relationship management).</b>	
	<b>117</b>	Organization and functions of a Help Desk Unit	<b>117</b>	Ability to mention the functions performed by a Help desk unit and the way it should be organized.
	<b>118</b>	Call logging and documentation	<b>118</b>	Ability to record service calls received and to obtain details required to analyze and assign them.
	<b>119</b>	Help Desk statistics	<b>119</b>	Ability to identify and maintain basic Help desk statistics, like calls received, pending calls, calls per Help desk clerk, etc.
	<b>120</b>	User relations and communication	<b>120</b>	Ability to recognize the importance of maintaining good relations and communication with users.
	<b>121</b>	Technical support tasks	<b>121</b>	Ability to perform basic technical support tasks.
	<b>122</b>	Functional support tasks	<b>122</b>	Ability to perform basic functional support tasks.

DISCIPLINE INDEPENDENT SKILLS				
VIII.	Personal skills			
#	Short title		Description	
<b>23</b>	<a href="#">Personal productivity skills</a>		<b>Ability to utilize personal productivity tools.</b>	
	<b>123</b>	Keyboarding	<b>123</b>	Ability to use a keyboard to execute applications and to enter data.
	<b>124</b>	OS operations	<b>124</b>	Ability to perform basic operating system functions like copying, moving and deleting files, installing and executing applications, etc.
	<b>125</b>	Word processing	<b>125</b>	Ability to prepare documents using a word processor.
	<b>126</b>	Spreadsheets	<b>126</b>	Ability to prepare worksheets using a spreadsheet program.
	<b>127</b>	Presentations	<b>127</b>	Ability to prepare presentations using a presentation program.
	<b>128</b>	Internet	<b>128</b>	Ability to use the Internet to access data, download programs, and send/receive emails.
	<b>129</b>	Social networking	<b>129</b>	Ability to use social networking tools to interact with other people, like customers, vendors and workmates.
<b>24</b>	<a href="#">Soft skills</a>		<b>Ability to interact effectively with coworkers and customers, and to pursue continuous development.</b>	
	<b>130</b>	Life-long learning	<b>130</b>	Ability to recognize the need to keep abreast and to continuously pursue professional development.
	<b>131</b>	Ethical behavior	<b>131</b>	Ability to recognize the importance of ethical behavior in a computing professional.
	<b>132</b>	Witten/oral communication	<b>132</b>	Ability to communicate effectively with a range of audiences, both orally and written, in Spanish and English.
	<b>133</b>	Teamwork	<b>133</b>	Ability to function effectively in teams seeking to accomplish a common goal. (Including virtual teams.)

25	<a href="#">Analytical/Problem solving skills</a>	<b>Ability to apply knowledge and skills to address unstructured situations. (Although these skills are part of most other skills.)</b>
	134 Analysis	134 Ability to decompose an unstructured situation into its key components and to identify relationships among these components.
	135 Synthesis	135 Ability to integrate individual components into a meaningful and structured whole.
	136 Application	136 Ability to apply applicable knowledge and skills into the analysis and synthesis of an unstructured situation.

IX. Entrepreneurship (This skill category could be eliminated as a separate skill category and included as a skill set under the Personal skills category.??)		
#	Short title	Description
26	<a href="#">Entrepreneurship</a>	<b>Ability to evaluate the feasibility of a computing business idea and to prepare a plan to implement it.</b>
	137 Feasibility study	137 Ability to evaluate the feasibility of a computing-related business idea.
	138 Business plan	138 Ability to prepare a plan to implement a computing-related business idea.
	139 Business organization	139 Ability to describe ways in which a business can be organized, and the accounting, reporting and regulatory framework applicable.

X. Industry skills		
#	Short title	Description
27	<a href="#">Industry processes &amp; regulations</a>	<b>Ability to describe processes, best practices and regulations related to all industries or to a particular one.</b>
	140 Industry-independent processes	140 Ability to describe processes and best practices common to all industries, like Payroll, Inventory, Accounts receivable, Accounts payable, etc.
	141 Industry-dependent processes	141 Ability to describe processes and best practices pertaining to a particular industry, like Banking, Distribution, Manufacturing, etc.
	142 Industry regulations	142 Ability to describe regulations applicable to a particular industry, like Banking, Distribution, Manufacturing, etc.

Verbs used to express the four cognitive levels used in describing the different skills	
1	UNDERSTANDING (DEFINE/IDENTIFY/EXPLAIN/RECOGNIZE/BE AWARE OF/SPECIFY/DESCRIBE/CONSIDER/COMMUNICATE)
2	PERFORMING (IMPLEMENT/PERFORM/INSTALL/USE/DEPLOY/DOCUMENT/ORGANIZE/CONFIGURE)
3	ANALYZING (ANALYZE/EVALUATE)
4	CREATING (DETERMINE/DEVELOP/DESIGN/CREATE/INTEGRATE/APPLY)

Definitions used in this inventory	
1	<a href="#">Ability</a> A person's capacity to understand, perform or behave.
2	<a href="#">Skill</a> Wikipedia: A person's level of expertise in doing something. (Since we are not requiring an advanced level of expertise, we use "skill" mostly as synonymous to "ability".) Merriam-Webster: The ability to use one's knowledge effectively and readily in execution or performance. The ability to do something that comes from training, experience, or practice.
3	<a href="#">Competency</a> United States Office of Personnel Management: A measurable pattern of knowledge, skills, abilities, behaviors, and other characteristics that an individual needs to perform work roles or occupational functions successfully. ( <a href="http://www.opm.gov/policy-data-oversight/assessment-and-selection/competencies/">http://www.opm.gov/policy-data-oversight/assessment-and-selection/competencies/</a> )

4	<a href="#">Behavior</a>	Merriam-Webster: The manner of conducting oneself. The response of an individual, group, or species to its environment.
5	Technical skills	A person's abilities to perform a certain type of task or activity. Also referred to as "domain-specific skills".
6	Soft skills	A person's abilities to interact effectively with coworkers and customers, which are broadly applicable both in and outside the workplace. Also referred to as "domain-independent skills".
7	Industry skills	Functional skills related to all industries (horizontal skills) or to a particular industry (vertical skills).
8	Product development cycle	Cambridge Dictionaries Online: The various stages that a new or improved product or service goes through from design, through developing, testing, and marketing it. ( <a href="http://dictionary.cambridge.org/dictionary/business-english/product-development-cycle">http://dictionary.cambridge.org/dictionary/business-english/product-development-cycle</a> )

Skill structure used in this inventory		
1	Two main subdivisions	Discipline-dependent (computing) versus Discipline-independent (non-computing) skills
2	Seven major discipline-dependent skill categories	IT management, Analysis and Logical design, Enterprise systems, Implementation, Physical design, Programming, and IT Operations and Maintenance
3	Twenty-two discipline-dependent skill sets, within the seven skill categories	Big Data, IT Governance, Security, Project Management, Business process analysis, etc.
4	122 specific discipline dependent skills, within the 22 skill sets	Dimensional databases, Data warehouses, Data extraction and cleanup (ETL), Data transformation and load (ETL), User interface for decision support, etc.
5	Three major discipline-independent skill categories	Personal, Entrepreneurship and Industry skills
6	Five discipline-independent skill sets, within the three categories	Personal productivity skills, Soft skills, Analytical/Problem solving skills, Entrepreneurship, and Industry process and regulations
7	Twenty specific discipline independent skills, within the five skill sets	Spreadsheets, Presentations, Social networking, Life-long learning, Ethical behavior, Communications, Teamwork, etc.
8	Frameworks used to structure skills	COBIT, SDLC, ITIL, plus Personal, Entrepreneurship, and Industry skills