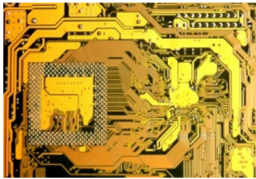


Incubator Feasibility Study and Business Plan



Phase 1 Market Feasibility Study



For

Cecil County, Maryland
Office of Economic Development



Prepared by Axcel Innovation LLC
June 3, 2015



Cecil County, MD

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Phase 1 – Market Feasibility Study

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1. Executive Summary

The importance of supporting the creation of new businesses within economic development strategies has increased in the last decade as an approach that leads to businesses that are strongly anchored in the location in which they are established and have the potential to create a wider diversity in the industry base than large-scale business attraction efforts.

Axcel Innovation LLC was retained by the Cecil County Office of Economic Development to undertake a two stage process to determine if there was sufficient justification to develop a plan for the creation of a business incubation program in Cecil County, and if so, to develop a plan for doing so.

This report addresses the first of the two phases, the Market Feasibility Study. The second phase, the development of a Business Plan and Financial Feasibility Study will be the subject of a separate report.

This report includes a brief introduction to business incubation as a tool to support entrepreneurial activity and the key elements that are, in the experience of Axcel Innovation, necessary for such an initiative to succeed.

The report then presents a detailed assessment of the key criteria by which the feasibility of such an initiative can be assessed, along with conclusions based on the outcome of the analysis.

The principal conclusions are as follows:

Purpose

- ◆ The creation of an incubation program or similar initiative to encourage and support entrepreneurship within Cecil County links directly to the Vision, Values, and Strategy as defined in the Economic Development Strategy.

Opportunities

- ◆ There are several distinctive characteristics of the County that represent opportunities and should shape any proposed program, including:
 - The presence of Union Hospital, which has indicated an unusually high level of interest in working with new companies that are developing relevant products and services
 - The willingness of the Cecil County Chamber of Commerce to engage with the incubator concept and support the initiative

- The presence of Cecil College which already offers workspace to some local companies
- The substantial percentage of the population that commutes out of the County on a daily basis, often beyond the immediately neighboring counties. These commuters represent a potentially significant pool of entrepreneurial talent.
- The presence of a strong transportation and logistics capability within the County which is highly consistent with the increasing utilization of widely geographical supply chains and distribution networks being used even by small companies
- The opportunity to leverage the presence of academic institutions and industry in New Castle County and Harford County in positioning Cecil as node in a broader regional economic network

Challenges

- ◆ There are nonetheless some important challenges that such a program must also address, including:
 - The need to change a perception that is believed to be held by some within the County and its neighbors, of the County as a bedroom community that lacks the infrastructure to support new business creation.
 - The need to involve the large companies present in the County in any entrepreneurship initiative – to lend credibility to the program, to provide guidance, and potentially as a source of entrepreneurs.
 - To define a model for the program which makes the most efficient use of the available resources (which is by no means unique to Cecil County).

Potential Models

- ◆ A range of potential models exist that to differing extents address the situation of Cecil County, but the most appropriate solution is believed to be a combination of several of these, combining the following elements:
 - A co-working space model that offers a means of leveraging a small amount of space for use by a relatively large number of clients.
 - A range of services to support entrepreneurs, which would be characteristic of more traditional incubation programs, but not co-working spaces as they are currently designed and operated.
 - Multi-tenant office space, providing individual offices for early stage companies, under the overall management of the incubation program.
 - Access to specialized resources, such as laboratory space, for those clients that need them

There is the potential to establish a partnership-based model in which the resources available through different organizations can be accessed in a way which is seamless to the incubator clients, and in which the partners have a role in the ongoing planning and oversight of the incubation program.

These organizations could include, but would by no means be limited to:

- ◆ NEMD Tech Council
- ◆ Union Hospital
- ◆ MEDCO
- ◆ TEDCO
- ◆ Cecil College
- ◆ Cecil County Public Schools
- ◆ Harford Community College
- ◆ Cecil County Chamber of Commerce
- ◆ Cecil County-based Corporations

Demand

- ◆ Determining the potential demand for new incubation programs is extremely difficult, but the available data suggests that the potential exists for the creation of a significant number of companies within the County each year.

Depending on the model used, the numbers range from 31 to 57 companies per year, although it may take time for these kinds of numbers to be realized. It is also important to appreciate that of these companies, not all will succeed in the long term, but the development of a culture of entrepreneurship in the County, and the provision of appropriate support to the individual entrepreneurs will maximize the chances of these numbers being realized.

In order to achieve the potential level of activity, the program should recognize the various stages through which entrepreneurs pass as they consider an entrepreneurial pathway, develop their ideas, and commit to pursuing them, and seek to meet the needs of clients at all stages of the process.

- ◆ Key needs of entrepreneurs that the program will need to address include:
 - Mentoring and advisory services, including financial planning
 - Assistance with identifying and accessing sources of investment capital
 - Training and education programs, particularly in business disciplines.
 - Networking groups and associated events
 - Inexpensive and flexible workspace

- ◆ The program should seek to stimulate demand as well as responding to existing demand, through activities involving its various partner organizations, to raise awareness of entrepreneurship as a potential path and the resources available to those who choose to pursue it.

Performance Metrics

- ◆ The appropriate performance metrics for incubation programs should always be kept under review to ensure that they meet the needs of both their clients and their sponsors. Metrics can also represent different aspects of an incubation program, from activity measures, reflecting progress against the agreed plan for the program, to measures of longer-term impact
- ◆ In the first instance, the following impact metrics are recommended:

Direct (measurable at the individual company level):

- Job creation
- Capital raised
- Grant funding and contracts attracted
- Products and services launched
- Patents utilized

Indirect (measurable in aggregate)

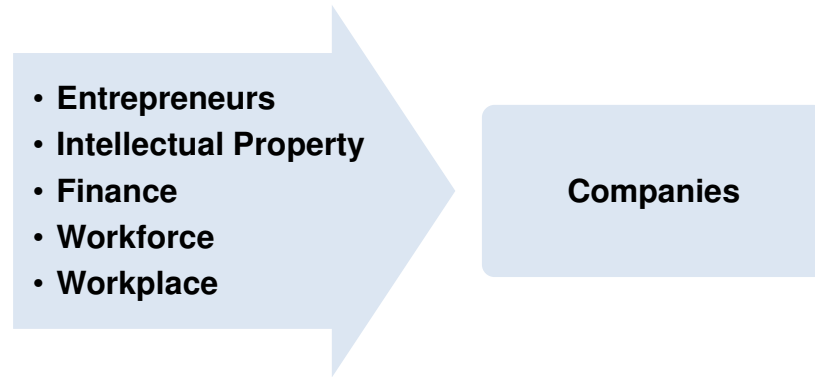
- Development and growth of target industry sectors
 - Industry and geographical market reach of client companies
 - Contribution to the County tax base
 - Reduction in Commuting
 - Community revitalization
- ◆ The development of appropriate activity measures, linked to a business plan for the incubation program, forms part of the second phase of the study

Recommendation

- ◆ On the basis of the work undertaken for this first phase of the study, it is recommended that Cecil County proceed with the second phase, the primary purpose of which is to develop a business plan and implementation plan for the proposed incubation program.

2. Company Creation, Entrepreneurship, and Business Incubation

The creation of new companies is, in theory, a relatively simple one, as illustrated in the following diagram, which can be represented as follows:



In this context, 'Intellectual Property' can mean anything from patents to a new business concept, or simply the knowledge that an individual has regarding how an existing business model can be deployed productively. The need for a location – some physical space in which the company can be established and function has traditionally meant office buildings, factories, warehouses, laboratory facilities, and other types of buildings dedicated to a particular purpose, but increasingly in certain fields, now also includes entrepreneurs' homes.

Start-up Companies and Economic Development

In an economic development context, the interest in the creation and growth of private sector companies is in their role as a source of wealth creation, either through their contribution to the tax base, or through the employment of a workforce. New companies are often innovative in their business model or in their use of new technologies and can 'pivot' – changing direction in response to new technology, market information, or other external factors faster than larger more established companies. History suggests that established companies may be acquired, may shrink or fail as markets change, or may, in some cases, even relocate, emphasizing the value of new companies within a local or regional economy.

New companies also face considerable challenges, however. Their business models may be untested, their management capabilities may be limited, and they are typically financially constrained which can impact on their ability to acquire the resources they need to grow, or even to survive.

Equally, while potentially more monolithic and slower to change, established companies are more likely to have the financial reserves to enable them to weather difficult times and reposition themselves, and can provide continuity in the economy that is of considerable value. They also generally have much better access to the relevant market(s) than do start-up companies, with an existing customer base and a practical and pragmatic understanding of how their markets function.

In reality, a balance of new and more established companies provides a desirable combination of innovation and durability, and a flow of new businesses into an economy is almost always seen as a necessary condition for a healthy economy that can be sustained, and potentially grow. The interplay between new and established companies can also be highly productive – with early stage companies being able to innovate and refocus as the understanding of new products or services are developed while the larger companies can provide vital channels to market through partnering arrangements.

High Growth Businesses

There has historically been debate within the economic development community concerning the extent to which economic development activity should focus on the subset of companies that exhibit, or are expected to exhibit, high growth, but efforts to identify these companies at an early stage have had mixed results, and have often led to economic development approaches that have been considered to be focusing support on companies that have already succeeded and are supported at the expense of other companies for which targeted assistance would have a much greater impact.

Market or Technology Focus

A further consideration in considering support for start-up and early stage companies is the question of adopting a focus on specific technologies or markets, which generally arises out of existing strengths that are believed to exist in a local or regional economy. While there can be a strong logic to support these approaches, it is important to bear in mind that many companies that are in less exciting fields can grow rapidly, such as Kinko's (now FedEx Office) - providing photocopying services, and 1-800-Got-Junk - essentially doing trash collection. Equally, in a rapidly-changing technological environment it can be extremely difficult to predict what new markets may exist, even in the near future, and which companies will be best placed to address them. New companies may also be able to revitalize existing markets in previously unforeseen ways.

For these reasons, unless there is an overriding set of local factors, it is often more advantageous to take a broad approach to business creation, from which a natural emphasis is likely to emerge, reflecting the strengths of the local entrepreneurial ecosystem and its ability to address specific markets.

Support for Companies or Entrepreneurs?

For a long time, the answer to this question was that support should be provided to companies. Many economic development initiatives, including business incubation programs, were targeted at start-up companies – with many employing selection criteria that implicitly (or sometimes explicitly) excluded individual entrepreneurs that had not yet formed a company. The hurdle of creating a company in some form functioned as a preliminary filter for those who did not have the drive or the resources to move forward and convert their business idea into a traditional form.

There are several problems with this approach however:

- ◆ It fails to acknowledge that all companies in their earliest stages are driven by individual entrepreneurs or by small teams of individuals, and that it is the intellectual and emotional qualities of the entrepreneur(s) that to a large extent govern the success or failure of the enterprise.
- ◆ The nature of entrepreneurship has changed radically in recent years, with companies being able to access an extraordinary array of resources at very low cost through the medium of the internet, enabling people to create viable businesses that would once have not made it through the program entry requirements.
- ◆ Skills and experience are a major challenge for many aspiring entrepreneurs, who are trying to fill a range of roles in their business for which they have never been trained and have no relevant experience.
- ◆ Nascent entrepreneurs need networks to help build their knowledge and connect with potential partners and advisors if they are to move to the stage of creating a new company. Programs that do not address this and maintain a focus on a small select group of companies very probably lead to many opportunities never coming to fruition.

Given these considerations, support for the individual entrepreneur is an increasingly high priority for initiatives that are intended to support business creation and growth.

Feasibility

The feasibility of incubation programs and related initiatives hinges on identifying where, and in what ways, the entrepreneurial process is not operating effectively to deliver the desired outcomes; what approaches could address these elements of the process; and whether a model can be devised in which the necessary resources can be accessed to deliver the desired outcomes on a sufficient scale.

Incubation is not, however, a purely mechanical process. It takes place within a community comprising real people whose support and participation is extremely important.

There are consequently five key elements that, in the experience of the Axcel team, must be considered in addressing the question of feasibility, as summarized in the following diagram:



Those elements that fall in the center and left of this diagram – Leadership, Community Support, and Demand are the subject of this report. The question of the resources required and the potential scale of any proposed program of activity are addressed in the Phase 2 report.

2.1 Trends in Entrepreneurship – From Tenants to Clients

Business incubation as a concept originated in the late 1960s as a response to a lack of resources available to early stage companies – particularly in respect of the availability of office and manufacturing space of an acceptable quality that could be rented on a flexible basis. Over the subsequent decades, a strong emphasis remained within the business incubation community on providing space. Most, if not all, incubators were modelled on providing a location for a relatively small group of early stage companies who were viewed as tenants. The limited amount of space that could be provided led to the implementation of selection procedures and graduation requirements to try to maximize the impact of the available space which was generally a relatively expensive resource.

It was apparent that by bringing a group of small companies together in a single location, services could also be provided to them on a shared basis in a way that would not otherwise be financially viable, with most incubators providing a shared reception service and other secretarial and administrative support.

Of particular value for many incubator tenants was access to meeting rooms and the use of telephone systems with multiple lines which allowed a single receptionist to answer calls in the name of the individual tenants, route calls, and take messages as necessary. Access to shared office equipment was also often seen as highly attractive.

Over time, incubator programs began to be created to cater to specific types of companies, often in purpose-built facilities, and often providing access to specialist equipment and facilities such as lab space and associated equipment, high bandwidth internet connectivity (at a time when this was often difficult to access, and expensive), and food production facilities. The challenge for these projects was that the cost of establishing them was far higher than could be recouped through rent or other charges – the paradox being that the early stage companies that were their intended focus could not afford to use them unless the costs were heavily subsidized. In some cases, grant funding was used to finance the physical facilities with the consequent absence of any debt service, allowing more realistic rents to be charged.

It also became common for incubation programs to offer a wider range of services to their tenants, including training programs, networking opportunities, and business support services including mentoring programs. These would generally be provided by third parties, often on a pro-bono basis. The basic paradigm nonetheless continued to be one of physical facilities leased to tenants with fixed lease terms.

In the last decade, there have however been significant changes in the nature of entrepreneurship which have equally significant implications for business incubation programs and other initiatives aimed at supporting entrepreneurs and early stage companies. These changes fall broadly into two categories, which are in reality somewhat inter-related, with a third which is now emerging:

- ◆ **Telecommunications Technology**

In a relatively short period of time, the opening of the internet for commercial use has fundamentally changed society and how entrepreneurs and early-stage businesses can operate. Companies are now able to access a range of online services providing resources that would until very recently not have been available. These services, often provided by other start-up companies, are available at very low cost through the medium of the internet. In addition to marketing, sales channels, payment processing, order fulfilment, customer support, and a bewildering array of highly specialized services that would once not have been available outside of major population centers are now available to anyone with an internet connection.

- ◆ **Globalization**

The increasing globalization of industries has led to the creation of a situation where, possibly for the first time in history, a small company can source supplies and sell their products anywhere in the world. This has been facilitated by reductions in

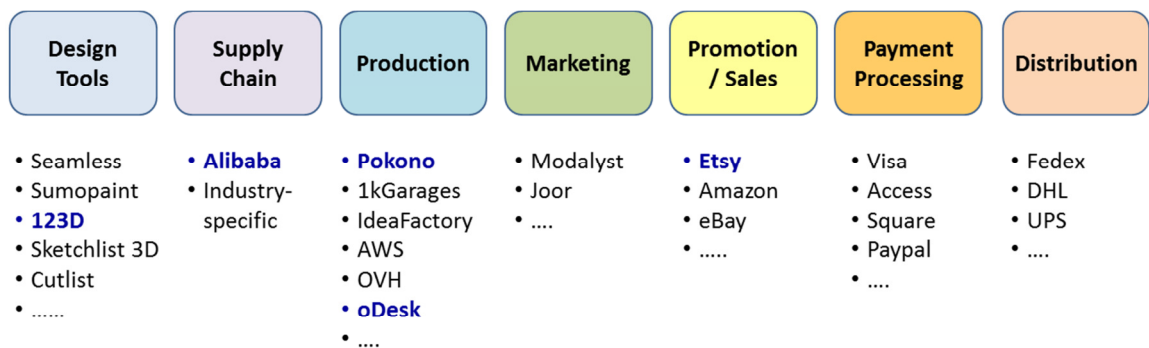
trade barriers, but also by the globalization of financial systems and the creation of payment processing companies such as PayPal, and by the increasing sophistication of global transportation and logistics operations. Combined with the ubiquity of the internet as a medium for communications and business transactions, a situation has been created where any individual or organization can operate on a global basis at a cost which is at historically low levels, and with fast, reliable, supply chain and distribution networks.

◆ **Advanced Manufacturing**

In the last five years, a range of manufacturing technologies have reached a level of maturity sufficient for them to become available at a cost that is viable even for individuals to utilize. These include various approaches to additive manufacturing (3D printing), computer-controlled subtractive manufacturing (milling machines and other machine tools), and associated tools such as laser cutters. It is now possible to set up a highly sophisticated machine shop that would once have required hundreds of thousands, or even millions of dollars to create, for less than the price of an average family car.

Even this, however, is becoming superseded by companies that combine these tools with internet-based services so that products can be designed using highly sophisticated (and often free) software, transferred online, and used to print / cut / machine the actual product, which is then shipped out to the designer (overnight if required) – all at a cost of a few dollars.

The following diagram illustrates the extent to which the combination of the internet, globalization of markets, and advanced manufacturing technologies are creating a new paradigm. It shows a notional value chain from product design and development to distribution (in the interests of space, the diagram does not include post-distribution customer support and other after-sales activities, but these could easily be added).



The bulleted lists show a selection of companies, products, and services, chosen at random, that are available to entrepreneurs via the internet, at very low cost (and in some cases at no cost). *(Highlighted names are examples of larger companies that have established a strong position in the market)*

These resources have become so extensive that an exhaustive list of all such services would be impossible to create, but they span design for physical products (123D, Seamless) and software, production of physical products (e.g. Pokono, IdeaFactory), and the infrastructure for high capacity on-line systems (AWS), and their marketing and sales (e.g. Modalyst for textile-based products, Etsy for hand-crafted products).

It is now possible for a few hundred dollars a month to operate a remotely-hosted web infrastructure that would have cost hundreds of thousands of dollars to acquire and maintain only a few years ago. A home-based worker designing and making textile products can access a worldwide customer base, and a two or three person company can design, manufacture, and distribute products without necessarily ever having held them in their hands. All can access cutting edge resources that would until recently have been the sole domain of large manufacturing companies.

The diagram does not include the range of 'back office' support resources that are required to support the operations of a business, such as accounting, routine legal work, or telephone systems and receptionists, all of which can now also be obtained online, at low cost.

The importance of these trends in the context of entrepreneurship is substantial. They effectively lead to what might be referred to as the democratization of entrepreneurship, enabling anyone even with modest financial resources, to build a viable business in almost any industry or market with minimal capital investment, and to use operational resources that are highly cost effective, scalable, and can continue support a company whether it remains a one-person operation or grows to a much larger scale.

The impact on incubation programs is also significant – there is much less of a need to accommodate companies in their own dedicated offices or provide other resources such as shared telephone systems, and much more of a need for highly flexible space that can be utilized by individuals or by entrepreneurial teams on an as-needed basis. Once the idea of renting office space to tenants is replaced by providing space and services to clients on a highly flexible basis, a much larger population of entrepreneurs can be supported, reducing the overall resource requirement, and consequently, the cost. The implications of these developments for the proposed incubation program in Cecil County are discussed later in this report.

3. Economic Context

The economic context that exists in Cecil County and the surrounding region will be a primary influence on the scope and scale of any program aimed at supporting the creation and growth of new companies in the County.

The following sub-sections provide an analysis of key aspects of the county economy, followed by a summary of the conclusions drawn. It should be noted that the majority of the available data sources utilize the concept of an 'establishment' rather than a company as such. In this context, an establishment is a single location from which a company operates, which means that a large company with multiple locations in the geographical area of interest (such as W L Gore in Cecil County) may appear as more than one establishment, although the situation can be complex – physically adjacent sites may or may not be treated as separate establishments for example. For most intents and purposes, however, the majority of companies have only one location at the county level, and the discrepancies at the larger end of the scale are generally evident.

3.1 Industry Base

The following table provides an overview of the Cecil County industry base:

Industry Code	Description	Establishment Size (Employees)								
		1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000+
11----	Forestry - Fishing - Hunting - and Agriculture Support	6	3	0	1	0	0	0	0	0
21----	Mining	0	0	3	2	0	0	0	0	0
22----	Utilities	1	1	1	0	1	0	0	0	0
23----	Construction	171	36	18	3	0	0	0	0	0
31----	Manufacturing	14	7	6	7	5	3	4	3	0
42----	Wholesale Trade	32	12	9	11	1	1	0	0	0
44----	Retail Trade	105	74	47	24	9	3	2	0	0
48----	Transportation and Warehousing	55	15	8	5	4	3	2	0	0
51----	Information	9	0	0	5	0	0	0	0	0
52----	Finance and Insurance	40	29	10	2	0	0	0	0	0
53----	Real Estate and Rental and Leasing	58	11	1	0	0	0	0	0	0
54----	Professional - Scientific - and Technical Services	118	25	10	1	1	0	0	0	0
55----	Management of Companies and Enterprises	2	0	2	0	0	0	0	0	0
56----	Administrative and Support and Waste Management	59	15	10	7	2	2	1	0	0
61----	Educational Services	10	1	4	4	1	2	0	0	0
62----	Health Care and Social Assistance	87	52	31	16	1	4	1	0	2
71----	Arts - Entertainment - and Recreation	21	11	9	4	1	1	1	0	0
72----	Accommodation and Food Services	65	34	41	24	9	5	0	0	0
81----	Other Services (except Public Administration)	130	43	26	11	1	0	0	0	0
99----	Unclassified	2	0	0	0	0	0	0	0	0
-----	Total	985	369	236	127	36	24	11	3	2

Figure 3.1: Cecil County Industry Base, 2012 (data source, US Census Bureau)

The same data is also shown graphically in the table on the following page. This data shows some characteristics typical of most locations, but with some notable differences.

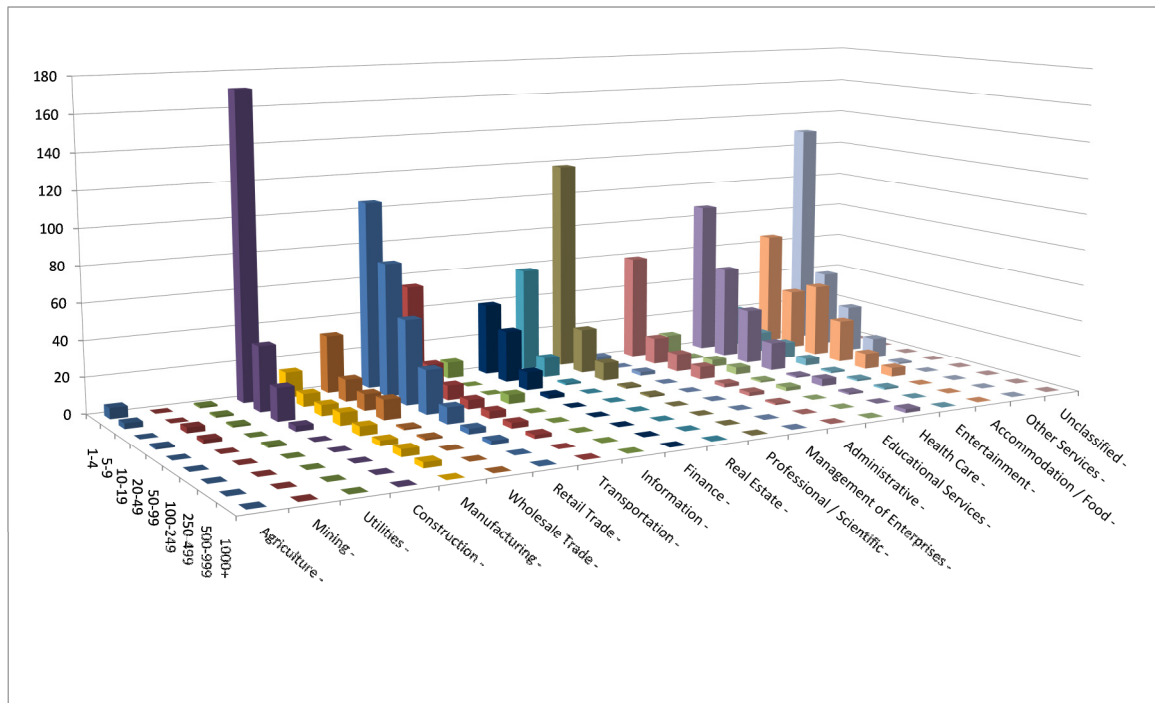


Figure 3.2: Cecil County Industry Base, 2011 (data source, US Census Bureau)

The typical characteristics include the following:

- ◆ A large number of companies in Construction, Retail, Health Care, and Other Services, with the majority of construction companies being small.

The more distinctive characteristics are:

- ◆ A relatively flat size distribution in Manufacturing – with fewer small companies than might typically be expected
- ◆ A similarly somewhat flat size distribution in Educational Services
- ◆ A relatively large number of companies in Professional, Scientific, and Technical Services, and also, to a lesser extent, in Transportation and Warehousing
- ◆ Given the semi-rural characteristics of the County, there are relatively few agriculture companies (the full definition being Forestry, Fishing, Hunting, and Agriculture Support)

Further analysis of the data is shown in Figure 3.3, which shows a 'heat map' for the County utilizing data from 2012 and 2007. Those combinations of industry and size for which there was growth in the number of establishments from 2007 to 2012 are highlighted in green, with those that suffered a decline are highlighted in red. Those that showed no change are highlighted in yellow.

Industry Code	Description	Establishment Size								
		1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000+
11----	Forestry - Fishing - Hunting - and Agriculture Support	1	1	0	1	-1	0	0	0	0
21----	Mining	0	0	1	0	-1	0	0	0	0
22----	Utilities	0	0	1	0	0	0	0	0	0
23----	Construction	-21	-31	-13	-10	0	-1	0	0	0
31----	Manufacturing	-4	2	-5	-5	3	2	-1	1	0
42----	Wholesale Trade	-6	-2	2	4	0	-2	-1	0	0
44----	Retail Trade	-19	-3	-14	-2	-1	-1	1	0	0
48----	Transportation and Warehousing	-10	8	-1	-3	3	0	1	0	0
51----	Information	-1	-4	-1	1	0	-1	0	0	0
52----	Finance and Insurance	-8	2	2	-3	0	0	0	0	0
53----	Real Estate and Rental and Leasing	-7	-2	-1	0	0	0	0	0	0
54----	Professional - Scientific - and Technical Services	-13	-4	-1	-4	0	0	0	0	0
55----	Management of Companies and Enterprises	1	-2	2	-1	0	-1	0	0	0
56----	Administrative and Support and Waste Management	-9	-3	-1	0	-1	1	1	0	0
61----	Educational Services	4	1	1	1	-1	0	0	0	0
62----	Health Care and Social Assistance	22	8	4	6	1	-2	1	-1	1
71----	Arts - Entertainment - and Recreation	-5	-4	-2	0	0	1	1	0	0
72----	Accommodation and Food Services	-4	1	11	-5	2	2	0	0	0
81----	Other Services (except Public Administration)	3	-3	12	0	0	0	0	0	0
99----	Unclassified	-1	0	0	0	0	0	0	0	0
-----	Total	-77	-35	-3	-20	4	-2	3	0	1

Figure 3.3: Cecil County Industry Base 'Heat Map' (data source, US Census Bureau)

It can be seen from the chart that there was a significant loss of small companies, with 87% of those lost being in the 1-4 and 5-9 employee ranges.

Given overall societal trends, it is not surprising that there was an increase in small companies in the Health Care and Social Assistance category, but the increase in Educational services is notable in the broader context of the overall decline.

Figure 3.4 shows a similar heat map for the number of employees and the annual payroll for each industry.

Industry Code	Description	Employees				Annual Payroll (\$000s)			
		2007	2012	Change	Change %	2007	2012	Change	Change %
11----	Forestry - Fishing - Hunting - and Agriculture Support	105	74	31	-30%	2,513	2,274	239	-10%
21----	Mining	175	60	115	-66%	7,983	4,238	3,745	-47%
22----	Utilities	60	60	0	0%	0	0	0	0%
23----	Construction	1,614	835	779	-48%	52,596	32,000	20,596	-39%
31----	Manufacturing	3,500	7,500	4,000	114%	0	0	0	0%
42----	Wholesale Trade	1,345	949	396	-29%	63,305	40,586	22,719	-36%
44----	Retail Trade	4,102	3,998	104	-3%	92,266	89,529	2,737	-3%
48----	Transportation and Warehousing	1,234	1,875	641	52%	49,888	74,194	24,306	49%
51----	Information	375	175	200	-53%	0	9,114	9,114	0%
52----	Finance and Insurance	542	457	85	-16%	22,341	18,835	3,506	-16%
53----	Real Estate and Rental and Leasing	175	178	3	2%	6,391	5,377	1,014	-16%
54----	Professional - Scientific - and Technical Services	731	561	170	-23%	25,281	19,037	6,244	-25%
55----	Management of Companies and Enterprises	175	60	115	-66%	0	0	0	0%
56----	Administrative and Support and Waste Management	889	1,114	225	25%	27,551	30,081	2,530	9%
61----	Educational Services	526	570	44	8%	12,568	15,847	3,279	26%
62----	Health Care and Social Assistance	3,832	4,490	658	17%	172,769	250,345	77,576	45%
71----	Arts - Entertainment - and Recreation	503	835	332	66%	13,311	21,955	8,644	65%
72----	Accommodation and Food Services	2,640	2,828	188	7%	37,608	43,695	6,087	16%
81----	Other Services (except Public Administration)	1,187	1,210	23	2%	27,118	27,726	608	2%
99----	Unclassified	0	0	0	0%	0	0	0	0%
-----	Total	24,234	25,572	1,338	6%	921,221	1,093,585	172,364	19%

Figure 3.4: Cecil County Industry Base 'Heat Map' (data source, US Census Bureau)



Unfortunately, the census bureau withholds data in certain categories to preserve the privacy of companies, but they do provide a means to estimate the relevant values for the number of employees. No such opportunity exists for the payroll data however.

In Figure 3.4, the cells highlighted in light blue are those that contain estimated values. These values are calculated as averages based on size categories and as such can at best provide an indication of the scale of the relevant value. As such, any percentage change derived from them should be treated as having a large margin for error.

Notwithstanding the uncertainty introduced by the lack of data for specific cells, it can be seen that there has been a significant increase in the number of employees in Health Care and Social Services, and in the Arts, Entertainment, and Recreation categories, and in Transportation and Warehousing. The apparent large increase in Manufacturing is however misleading and is a result of the estimation process. A closer analysis of the data suggests that the actual increase is probably closer to 1,000 employees than 4,000, but this is impressive nonetheless in an industry sector that has seen significant declines in employment at the national level. While payroll data for manufacturing industry is not available, on inspection of the data for other sectors, it is reasonable to assume that the majority of the net increase in overall payroll is due to the Manufacturing sector.

Figure 3.5, shown on the following page, shows a comparison of the industry structure in Cecil County compared to the other counties in the Wilmington CSA, and also for Harford County.

Inspection of the two charts in Figure 3.5 shows that manufacturing accounts for a greater percentage of employees than any other county shown, with the exception of Berks County, PA. (Note that the figure for Cecil is again based on an estimated value, but in this case the estimate is deliberately more conservative than in the data in the earlier charts). Manufacturing however accounts for only 3% of the establishments in Cecil County, emphasizing the concentration into a relatively small number of large companies.

Cecil County also has the largest percentage of employees and establishment in Transportation and Warehousing of all the counties shown, although the percentage of Transportation and Warehousing establishments is more similar across the counties than for Manufacturing.

While Cecil has a number of companies in the Professional, Scientific, and Technical Services sector, the percentage of the total workforce employed by them is at the lowest level of all the counties (matched by Cumberland, NJ and Salem, NJ).

Cecil does however have as high a percentage of employees in Educational Services as any county shown other than the Philadelphia and its adjacent counties, where there is a notable concentration of educational institutions.

		DE	MD	MD	NJ	NJ	NJ	NJ	PA	PA	PA	PA	PA	PA
Employees		New Castle	Cecil	Hartford	Burlington	Cumberland	Gloucester	Salem	Berks	Bucks	Chester	Delaware	Montgomery	Philadelphia
11----	Agriculture, Forestry, Fishing and Hunting	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
21----	Mining, Quarrying, and Oil and Gas Extraction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
22----	Utilities	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%	0%
23----	Construction	5%	3%	7%	4%	4%	6%	5%	4%	6%	4%	4%	5%	2%
31----	Manufacturing	5%	20%	6%	9%	17%	9%	14%	20%	11%	7%	6%	8%	4%
42----	Wholesale Trade	5%	4%	3%	6%	7%	9%	4%	6%	6%	7%	4%	6%	3%
44----	Retail	12%	16%	19%	13%	16%	20%	9%	14%	15%	12%	12%	12%	8%
48----	Transportation and Warehousing	3%	7%	6%	4%	8%	5%	5%	3%	2%	3%	3%	2%	4%
51----	Information	2%	1%	1%	2%	2%	1%	0%	1%	3%	3%	0%	3%	2%
52----	Finance and Insurance	13%	2%	3%	9%	3%	2%	2%	4%	4%	10%	6%	7%	5%
53----	Real Estate and Rental and Leasing	1%	1%	1%	2%	1%	1%	1%	1%	1%	1%	2%	2%	1%
54----	Professional, Scientific, and Technical Services	9%	2%	12%	10%	2%	4%	2%	4%	8%	9%	6%	9%	7%
55----	Management of Companies and Enterprises	4%	0%	0%	3%	0%	1%	0%	3%	2%	6%	3%	6%	3%
56----	Administrative and Support and Waste Management and Remediation Services	8%	4%	5%	7%	4%	8%	7%	5%	8%	7%	8%	8%	4%
61----	Educational Services	2%	2%	1%	1%	2%	1%	0%	2%	2%	2%	6%	3%	14%
62----	Health Care and Social Assistance	16%	18%	16%	14%	20%	17%	17%	17%	16%	14%	19%	15%	26%
71----	Arts, Entertainment, and Recreation	2%	3%	2%	1%	1%	2%	1%	1%	3%	2%	3%	2%	3%
72----	Accommodation and Food Services	8%	11%	12%	8%	8%	10%	8%	8%	8%	7%	8%	6%	9%
81----	Other Services (except Public Administration)	4%	5%	6%	4%	4%	5%	3%	5%	5%	5%	5%	4%	4%
99----	Industries not classified	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

		DE	MD	MD	NJ	NJ	NJ	NJ	PA	PA	PA	PA	PA	PA
Establishments		New Castle	Cecil	Hartford	Burlington	Cumberland	Gloucester	Salem	Berks	Bucks	Chester	Delaware	Montgomery	Philadelphia
11----	Agriculture, Forestry, Fishing and Hunting	0%	1%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
21----	Mining, Quarrying, and Oil and Gas Extraction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
22----	Utilities	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
23----	Construction	8%	13%	14%	9%	9%	12%	11%	10%	12%	10%	10%	8%	4%
31----	Manufacturing	2%	3%	3%	3%	6%	4%	3%	6%	6%	4%	3%	4%	3%
42----	Wholesale Trade	5%	4%	4%	6%	6%	6%	3%	5%	7%	7%	5%	6%	4%
44----	Retail	13%	15%	14%	14%	18%	16%	15%	15%	13%	11%	13%	13%	17%
48----	Transportation and Warehousing	2%	5%	3%	3%	3%	4%	4%	3%	3%	2%	2%	2%	2%
51----	Information	2%	1%	1%	2%	1%	1%	1%	1%	1%	2%	2%	2%	2%
52----	Finance and Insurance	10%	5%	6%	6%	4%	4%	5%	6%	6%	7%	7%	8%	5%
53----	Real Estate and Rental and Leasing	5%	4%	4%	3%	4%	3%	3%	3%	3%	3%	3%	4%	4%
54----	Professional, Scientific, and Technical Services	12%	9%	13%	13%	7%	9%	7%	9%	12%	16%	12%	14%	10%
55----	Management of Companies and Enterprises	6%	0%	1%	1%	0%	0%	0%	1%	1%	1%	1%	1%	1%
56----	Administrative and Support and Waste Management and Remediation Services	6%	5%	6%	7%	4%	7%	6%	6%	6%	7%	6%	6%	4%
61----	Educational Services	1%	1%	1%	2%	1%	1%	1%	1%	1%	2%	2%	2%	2%
62----	Health Care and Social Assistance	10%	11%	11%	12%	14%	12%	14%	10%	11%	10%	13%	12%	15%
71----	Arts, Entertainment, and Recreation	2%	3%	1%	1%	1%	1%	2%	2%	1%	2%	2%	1%	1%
72----	Accommodation and Food Services	7%	10%	7%	9%	9%	8%	9%	9%	7%	7%	9%	7%	14%
81----	Other Services (except Public Administration)	9%	12%	10%	10%	12%	11%	14%	13%	9%	10%	11%	10%	13%
99----	Industries not classified	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Figure 3.5: Relative proportion of employees and establishments by industry sector for the CSA counties + Hartford County



3.2 Patent Activity

The number of patents filed provides an insight into the extent to which technical innovation is taking place within a given geographical area. Patent law requires that patents are registered in the name of the inventor(s) rather than the companies that may employ them (although companies may require the rights to the invention to be assigned to them by their employees) and the US Patent Office (USPTO) database provides access to their location. This consequently provides a valuable insight into the innovative capacity that exists within the population.

Field	Patents
Chemistry	219
Electrical Engineering	35
Instruments	43
Mechanical Engineering	44
Civil Engineering	18
Other	8
	367

An analysis of patents filed between 2004 and 2014 citing Cecil County as the inventor's location is summarized in Figure 3.6.

It can be seen that a significant majority of the patents are in the field of chemistry, which is not surprising given the presence of W L Gore, Terumo, and Micropore in the County, among others.

Figure 3.7, shows a comparison of the level of patent activity for all Maryland Counties, including the number of patents per capita

County	Patents	Population	Patents per 10,000
Howard County	1556	287,085	54.2
Montgomery	4344	971,777	44.7
Cecil County	367	101,108	36.3
Anne Arundel	1498	537,656	27.9
Baltimore City	1548	621,115	24.9
Frederick County	574	233,385	24.6
Baltimore County	1822	805,029	22.6
Harford County	414	244,826	16.9
Carroll County	240	167,134	14.4
Talbot County	39	37,782	10.3
Dorchester County	26	32,618	8.0
Washington County	113	147,430	7.7
Wicomico County	67	98,733	6.8
Charles County	99	146,551	6.8
Queen Anne's County	24	47,798	5.0
Caroline County	16	33,066	4.8
Prince George's County	244	863,420	2.8
Kent County	5	20,197	2.5
Garrett County	7	30,097	2.3
Allegany County	16	75,087	2.1
St. Mary's County	20	105,151	1.9
Somerset County	4	26,470	1.5
Calvert County	4	88,737	0.5
Worcester	0	51,454	0.0

Figure 3.7: Patents filed by county (2004-2014) per 10,000 residents for all MD counties

Cecil County ranks 9th out of the 24 counties for the number of patents but 3rd out of 24 on a per capita basis, suggesting that Cecil has a disproportionately large capacity to generate technical innovations.

3.3 Workforce

An analysis of regional commuting patterns can provide additional insight into the extent to which a given geographical area has a balance between the number of residents and the number of jobs within its boundaries. Figures 3.8 and 3.9, respectively, show the commuting patterns for residents of Cecil County and for the people who are employed within the county.

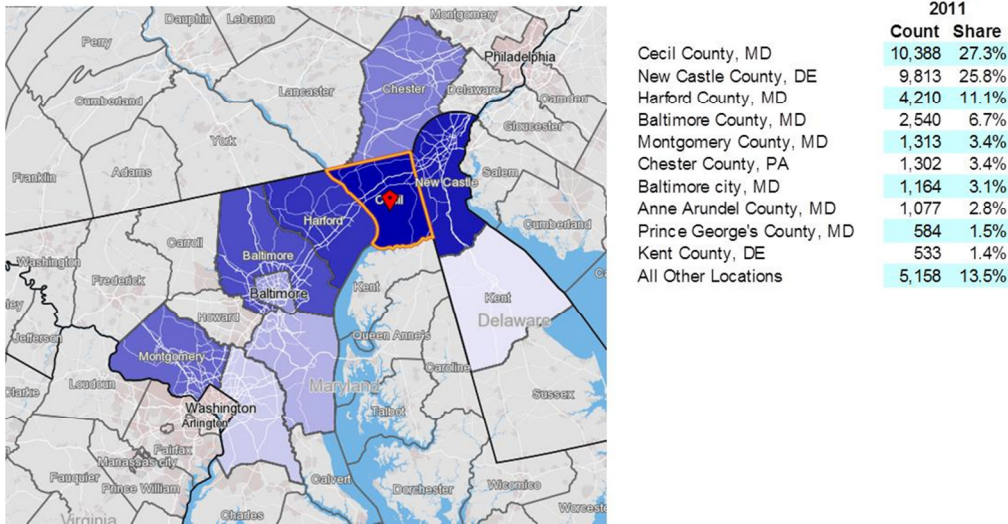


Figure 3.8: Locations where Cecil County residents work

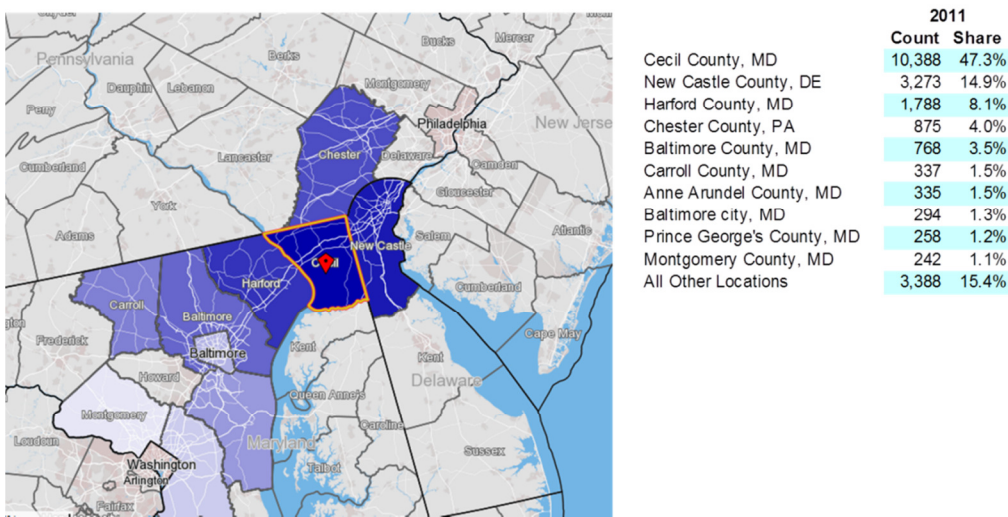


Figure 3.9: Locations where people who work in Cecil County live

The patterns are not entirely surprising given the presence of I-95 and other north-south routes and the proximity of New Castle County to the north. What is notable however is that only 25% of Cecil County residents work in the County, and that more than 50% of the County workforce is resident elsewhere. This suggests an opportunity to create more employment within the County for its residents.

3.4 Potential Impact of Aberdeen Proving Ground

An additional factor of potential relevance to the economy of Cecil County is the presence of Aberdeen Proving Ground (APG) to the South in Harford County. Work previously undertaken on behalf of Harford County suggested a set of technology domains that might be opportunities for Harford, which might in principle also be expected to be opportunities for Cecil. These included:

- ◆ Computer systems design
- ◆ Cyber security applications
- ◆ Systems Biology
- ◆ High performance computing
- ◆ Materials science

(Source: Battelle, 2012)

In reality however, there is limited evidence that these technology domains have generated companies in Harford County beyond those that are serving federal contracts associated with the APG. Experience in other locations also suggests that the work undertaken through federal procurement contracts at installations such as APG is frequently in the form of service contracts which do not lead to the generation of independent intellectual property that can be separately commercialized.

Experience has also shown that it can be difficult for defense contractors themselves to commercialize intellectual property beyond federal markets as private sector commercial markets differ in many respects to the federal contracting business, not least with respect to the sales and marketing process, production methods and volumes, and the nature of the associated distribution networks.

Notwithstanding these observations, to further investigate the extent to which there may be existing activity in Cecil County linked to APG that could potentially be a source of new companies, an analysis was undertaken of federal procurement contracts at APG that have been awarded to companies located in Harford County and Cecil County.

Figure 3.10 shows the number and total value of contracts awarded in both counties for the period from 2000 to 2014.

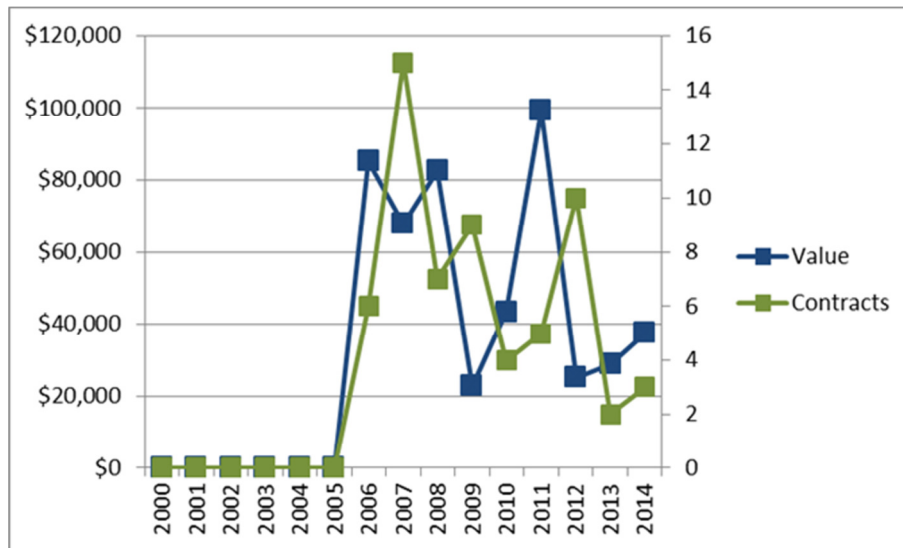


Figure 3.10A: Number of total value of contracts awarded to establishments in Cecil County for the period 200 – 2014

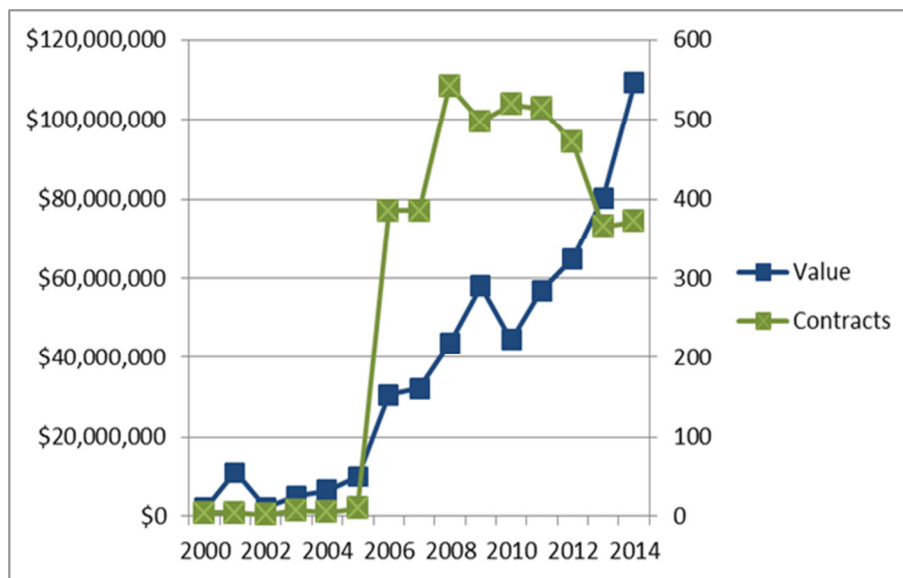


Figure 3.10B: Number of total value of contracts awarded to establishments in Harford County for the period 200 - 2014

It can be seen that the order of magnitude of both the total value and the number of contracts in both Counties increased significantly in 2005, coinciding with the 2005 BRAC round, and has continued to do so in Harford County. It is also evident however that the scale of activity is now three orders of magnitude greater in Harford County,

and appears to be continuing to increase in value. This suggests that the coupling between Cecil County and APG is relatively weak, and that the potential for new economic activity in Cecil arising out of work undertaken at APG may be limited.

It is also of note that despite the very much larger volume and value of activity undertaken in Harford County, the number of patents per capita is only about half that of Cecil County.

4. Stakeholder Analysis

In addition to the numeric data discussed in the preceding sections, the Axcel team also undertook a series of interviews with local, regional, and state-level stakeholders, to gather views and gauge the potential level of support for the establishment of an incubation program or related initiative within the County. A list of all interviewees is provided in Appendix 1.

A summary of the organizations interviewed is provided below:

- ◆ Maryland Technology Development Corporation (TEDCO)

TEDCO is the organization charged with technology-focused economic development in Maryland. It has historically provided considerable support for business incubation and other entrepreneurship support activities across the state, and has provided a portion of the funding for the current study.

- ◆ Maryland Department of Business and Economic Development (DBED)

DBED has responsibility for a broad range of industry development programs and also for the attraction of businesses to the state. It does not directly support business incubation programs but has a strong interest in the contribution that entrepreneurial companies can make to the development of key industry sectors.

- ◆ Maryland Economic Development Corporation (MEDCO)

MEDCO is a state agency that provides routes for the financing of public sector projects. They are involved in a wide range of projects from student housing to business incubation programs. They do not have funds of their own that they can utilize directly but typically package funding from a variety of sources to finance real estate projects for public sector organizations including counties, agencies, and educational establishments.

- ◆ Orbital ATK

Orbital ATK is a large aerospace company which operates a rocket motor factory in Cecil County. Their clients are primarily government agencies such as the Department of Defense, Department of Energy, and NASA, but they also have commercial customers. The company supports a number of charitable / volunteer organizations within the Cecil County community including STEM programs in the County schools. They also seek local contractors for work on their site.

- ◆ The North-East Maryland University Research Park (NEMD-URP)

This organization is a virtual, non-profit corporation funded by Harford County Economic Development. The University of Delaware, Towson University, UMBC,

UMB and Maryland College Park are also partners in the initiative, the goal of which is for Northeast Maryland to be a destination place for both businesses and academic institutions.

NEMD-URP actively markets the partner universities and small company partners to Aberdeen Proving Grounds for research collaborations. It is also working with TEDCO to help high tech companies get state grants and also SBIR/STTR Awards, and is developing a CRADA to connect the partner universities with research opportunities at APG.

- ◆ Harford County Economic Development

The Harford County Office of Economic Development has a strong focus on leveraging the potential for additional economic benefit from Aberdeen Proving Grounds (APG) which in the last ten years has experienced a very large increase in the number of military personnel, private sector companies, and employees serving its needs. This has included the recent relocation of the department to within a mile of the main gate of APG along with the colocation of a number of associated economic development initiatives.

Harford County has its own incubation program, the Harford Business Innovation Center, which has now been collocated with a co-working space branded as The Ground Floor, adjacent to the office of economic development. The County has also established a partnership branded as Hartford's Business Edge which includes the Public Library, the Chamber of Commerce, Harford Community College, and Northeastern Maryland Technology Council the purpose of which is to support entrepreneurs and start-up companies.

Given the focus on APG and the substantially different industry base in the two Counties, it is unlikely that Harford and Cecil counties will encroach on each other's economic development activities to a substantial extent.

- ◆ Cecil County Public Schools (CCPS)

CCPS has 16,000 students at 30 sites, and is in the process of opening a new School of Technology in an existing 150,000 sq ft building on 91 acres purchased from the Basell Corporation. The building is equipped with 11 wet labs, only one of which CCPS will be using and the others will, in principle, be available for use by early stage companies. There are likely to be requirements for any companies using the labs to be engaged with and support the educational mission of the school, for example through the provision of internships and other educational opportunities for students.

The STEM program for juniors and seniors currently includes 175 students and requires an entrepreneurial capstone project. CCPS also has a Business and Education Partnership Advisory Council meets monthly and includes Buris Logistics,

ATK, Gore, and Delmarva Power as well as engineering companies, restaurants, and service clubs (the Rotary and Lions clubs). This group advises the schools, holds fund raisers, and provides grants (www.ccps.org/District/Department/67-BEPAC)

- ◆ The University of Delaware

The College of Business at UD has a Center for Entrepreneurship which supports students pursuing entrepreneurial activity. They also have a 10,000 sq ft wet lab incubator available which includes a clean room and facilities for electron microscopy. The University Office of Economic Innovation and Partnerships manages intellectual property generated by university faculty and is able to provide licensing assistance to entrepreneurs. It also operates a spin-in program that helps companies develop new products. University research sponsors include Aberdeen Proving Grounds where they have 20 projects through CRADAs and partnerships.

The university also operates the CTR ACCEL program which is focused on biomedical research and its translation into products and services. The program received \$20 million for the National Institutes of Health with additional contributions of \$8.3 million from the State of Delaware and hospital and university partners.

The University also owns the Delaware Technology Park, where the tenants are in life science, information technology, advanced materials, and renewable energy markets. The park has 54 companies and organizations, ranging from multinational corporations to one to two person start-up companies as well as two research institutes, the Delaware Biotechnology Institute and the Fraunhofer Center for Molecular Biotechnology. The Delaware SBDC is also a tenant.

In addition, the University recently established the STAR campus at the site of a former Chrysler car plant. The campus has a strong focus on biomedical science and includes a wet-lab incubator.

While there is a clear interest in entrepreneurship, the University is seeking partnerships with large companies, particularly in the biosciences domain, and has created high quality facilities that are likely to be attractive to those companies, and are not necessarily tailored to the needs of early stage companies in general, particularly with respect to cost. The extent to which its activities are likely to impact directly on an incubation program in Cecil County is consequently likely to be limited, although the possibility of bioscience companies founded in Cecil becoming interested in a location at the STAR campus as they grow should not be discounted. It is possible that Cecil County may at some point need to consider the provision of growth space for those kinds of companies.

- ◆ The Northeastern Maryland Technology Council (NEMTC)

NEMTC has three major strategic thrusts:

- Supporting growth in technology and innovation (Examples: hosting SBIR/CRADA related events around Aberdeen Proving Ground, a Lunch 'n Learn series, and a gala recognition event).
- Building STEM capacity within the region's schools
- Facilitating networking among key regional decision makers.

It is funded 50% by member fees, 30% by event fees, and 20% by public grants and has space in the new Harford County Economic Development facility near Aberdeen Proving Grounds, although their operational region is not restricted to Harford County, and they run a number of events in Cecil County. The Council offers entrepreneurial start-ups a free first year membership and is open to affiliating with the proposed Cecil County incubator.

- ◆ University Center of Northeastern Maryland

The University Center (formerly the HEAT Center) is a regional higher education center for Northeast Maryland. The Center has six partners who use the facility to deliver the last two years of BS/BA degrees or master's degrees. Classes are held in the evening and are targeted primarily to adult education. The facility is also used for meetings and other training classes by day.

- ◆ Cecil County Chamber of Commerce

The Chamber recently celebrated their 25th anniversary. During the past 18 months, 93 companies have joined the Chamber – an increase of 40%. Most new members are small companies with 1-3 employees – many of which could be potential clients for an incubator. The Chamber will soon be relocating (but remaining within Elkton) and although would not have space available for incubator companies, would welcome the opportunity to be involved in any program that was established.

- ◆ The Upper Shore Regional Council

Located in Chestertown MD, the Council serves Cecil, Kent, and Queen Anne's Counties. Their strategic plan includes a Youth Tech Incubator and a mentor network, but these have not yet been implemented.

- ◆ Cecil County Union Hospital

The hospital has an economic development mission in addition to health care. Maryland hospitals have fixed rates of reimbursement set by the state resulting in a strong incentive to minimize cost. They emphasize telehealth, home monitors, wellness, innovative care delivery, telemedicine, patient safety, and data analytics.

There are numerous opportunities for entrepreneurs in all of these programs, and their inquiries are welcome.

- ◆ Harford Community College

Harford Community College has 7,000 credit students, and 12,000 students doing non-credit courses. It is located on a campus that includes a vocational training school and an outpost of Towson University which offers 2-year programs for community college students who want to transfer to a 4-year college for their junior and senior years. The community college has an entrepreneurship track, and is in the process of exploring the creation of an Entrepreneurship Institute. The college is not currently involved in any of the business incubation activity being undertaken by Harford County but has various resources and courses that might be relevant to aspiring entrepreneurs including CAD labs, GIS courses, and 3D printing facilities.

- ◆ Cecil College

Cecil offers associate degrees, certificate programs and non-credit classes, and has approximately 2,800 credit students and 6,500 non-credit students. The continuing education program includes entrepreneurship, and they have an Entrepreneurs Club. They partner with the Smith School of Business at the University of Maryland College Park and the SBDC in Harford County. The College has formalized articulation agreements with a number of public and private four-year institutions throughout Maryland and elsewhere to facilitate the transfer process for Cecil students and graduates for those students who wish to continue their studies beyond the Associate Degree level.

Of particular interest in the context of the present study, the College offers some of its space at Elkton Station to small businesses, and there may be scope to link this space to the proposed incubation program.

4.1 Summary

All of the organizations interviewed expressed the view that the establishment of an incubation program or a related initiative in Cecil County would be a positive step for the County. Several organizations expressed a willingness to participate in such a program in some form, including the Chamber of Commerce, Cecil College, Cecil County Public Schools, Harford Community College, the Northeastern Maryland Technology Council, Union Hospital, and Orbital ATK. The breadth of this support and interest not only provides a strong endorsement of the idea of creating an incubation program, but also opens a number of opportunities for the creation of an initiative that is more widely embedded in the community than is often the case for incubation programs. This would build on existing relationships as evidenced by the existence of the Cecil Business Resource Partners group which includes the schools, library, Cecil

College, the Chamber, Cecil County Economic Development, DBED, SBDC, and the Susquehanna Workforce Network (which serves both Cecil and Harford Counties).

There was broad consensus that the strength of the manufacturing base in Cecil County should provide a platform for entrepreneurial activity, particularly in the medical and chemical sciences. It was also noted that proximity to the Port of Baltimore is an asset in the context of logistics and distribution, not least because Cecil County potentially has more scope for the development of new facilities relevant to the sector than do counties to the South. The anticipated increase in traffic to the East Coast ports through the enlarged Panama Canal should have a positive impact for the County.

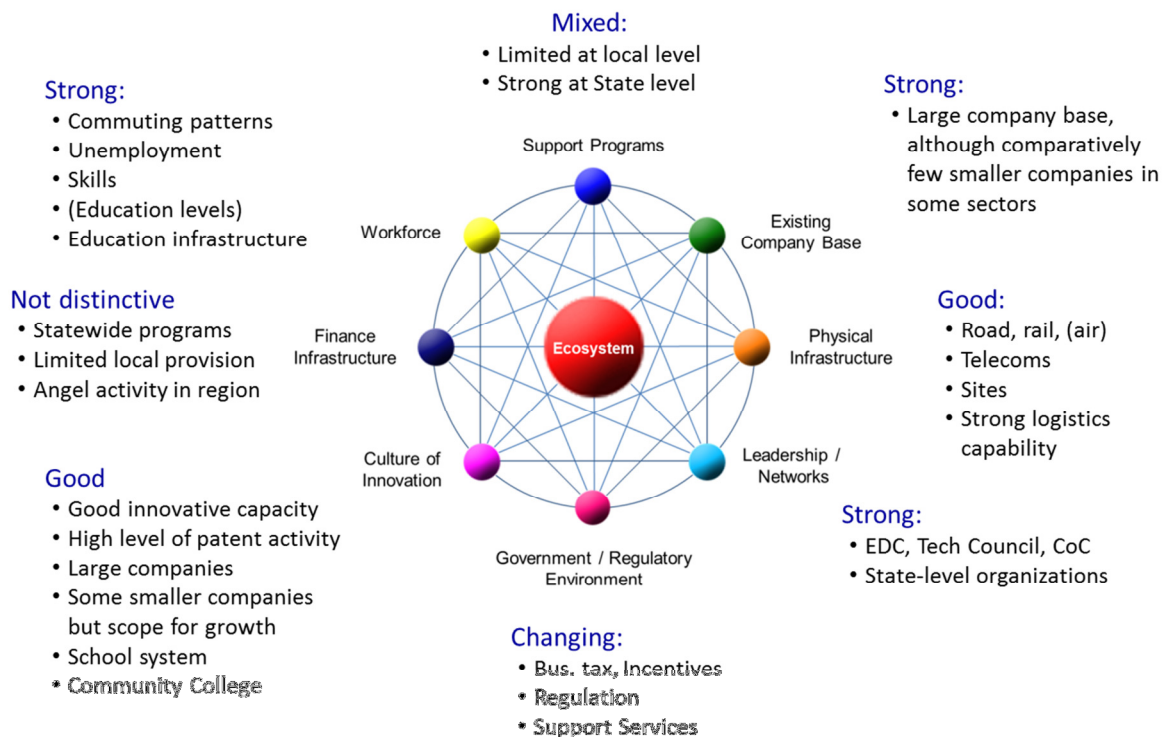
The characteristics that were felt by those interviewed to be important for the proposed program included:

- ◆ **Convenient to access**, with easy parking and proximity to amenities such as coffee shops, restaurants, copy shops, and other resources that participants might want to make use of. This has both a practical relevance with respect to the needs of those who use the program, but also makes it more accessible to prospective users and increases the likelihood that people will discover and engage with it.
- ◆ **Affordable space** that is appropriate to the needs of individual entrepreneurs and early stage companies. In particular the view was expressed by some interviewees that it was counter-productive to create 'high end' space for incubation programs as, in the absence of substantial grant funding that avoids the creation of debt obligations, this tends to drive up costs for the users.
- ◆ **Flexible space** that can be utilized by different users in different ways. The newly-relocated Emerging Technology Center in Baltimore was provided as an example of this, offering a variety of different types of space and amenities, and supporting a larger population of users than was the case at its old location.
- ◆ The provision of **business growth services** in addition to space. While this has in the past been a stated element of most incubation programs, the execution has often somewhat fallen short. Many interviewees expressed the view that provision of space alone, without appropriate services, is of limited value and unlikely to generate significant impact.
- ◆ **Management resource**. The view was expressed by several interviewees that a key distinguishing factor for incubation programs is the presence of a manager, or management team, who can work with clients to identify their needs and find solutions. This relates to the point regarding the provision of business services, with the role of the manager being to organize and coordinate the service provision component of the program.

5. Innovation Ecosystem

The concept of an ecosystem of resources within a region or community that collectively supports the entrepreneurial process is not new, and has been expressed in a variety of different forms. There is no definitive model for such an ecosystem, but through its work in many different locations, Axcel has developed a simple model that is often useful in capturing an overview of the extent to which the necessary infrastructure to support entrepreneurship is present in a given location. This comprises eight elements, or focus areas, and is summarized in the diagram below. It is important to emphasize that this does not in any sense represent a definitive analysis of the County, but is intended to capture a broad sense of where strengths and weaknesses may lie in relation to the existence of an environment that encourages and supports entrepreneurship. As such, the model captures the understanding gained from the analysis of economic data and also from the interview program. Individual readers may agree or disagree with specific comments, but the value of such models relates as much to the conversations that they may trigger and the development of a high level consensus as to capturing a unanimous view of every detail.

Innovation Ecosystem



The strengths identified in the model include:

- ◆ The presence of large companies in the County, that can, in principle provide access to markets for small entrepreneurial companies, and can act as a source of both entrepreneurs and skilled workers. While the latter may seem a potential negative, there is a considerable body of evidence to support positive impacts for large companies that encourage and support entrepreneurial activity by their workforce.
- ◆ The large companies also contribute to a culture of innovation, with W L Gore, Orbital ATK, Terumo, and Micropore all being active in industries that are heavily driven by technical innovation and the development of new products.
- ◆ A strong training and education infrastructure that provides the basis for a skilled and productive workforce.
- ◆ The presence of strong leadership networks and engaged organizations within the County and beyond.
- ◆ The County also provides access to major elements of transportation infrastructure through I-95, and proximity to the main East Coast rail line. Although it may seem less evident at a local level, in comparison to many locations, Cecil County also has access to two international airports being less than an hours' drive (Philadelphia International Airport and BWI).

The areas where the ecosystem appears less strong are as follows:

- ◆ The government (legal, tax, etc.) and regulatory framework in which the County operates. While Axcel did not carry out a detailed review at the level of specific legislation, a number of interviewees expressed the view that the tax and legislative framework in Maryland as a whole is not highly conducive to small business, although in practice, the complexity of making such an assessment and breadth of different approaches that have been adopted in published reports mean that it is difficult to get a definitive assessment. At the County level, the view was expressed that there is an increasing awareness of the competitive environment in which Cecil exists and that the general business climate was improving.
- ◆ The range of support programs for early stage companies, particularly for those in industries and markets that present opportunities for high growth companies, is more limited than in some other locations in the region, but in the absence of a major university or large population center, this is not completely surprising. It was in this context that many interviewees saw the proposed incubation program being of particular value.
- ◆ Anecdotal evidence suggests that there are some angel groups that would be prepared to invest in companies in Cecil, and there are programs at the State level that could be accessed by such companies, but the relatively limited availability of finance tailored to start-up and early stage companies, while not atypical for a county its size, is a potential restraint on the growth of innovative companies in the County.

6. Overall Demand Assessment

The feasibility of incubation programs hinges on identifying where, and in what ways, the entrepreneurial process is not operating effectively to deliver the desired outcomes, what approaches could address these elements of the process, and whether a model can be devised in which the necessary resources can be accessed to deliver the desired outcomes on a sufficient scale. As noted in our proposal, incubation is not, however, a purely mechanical process. It takes place within a community comprising real people whose support and participation is extremely important. It is for this reason that demand is only one of five of the key elements discussed in Section 2 of this report that must be considered in assessing the feasibility of an incubation program. It is nonetheless important to seek to gauge the potential level of demand as not only will an absence of demand render such a program unnecessary, but the anticipated level of demand also guides the appropriate scale of any program that is implemented.

“Demand” essentially comprises two key elements – Are there sufficient numbers of available entrepreneurs to support the establishment of an incubation program, and do they have unmet needs a program could satisfy in an effective and financially efficient manner? Our feasibility analysis consequently included both primary (interviews) and secondary research (data analysis) to answer the following critical questions regarding demand:

- 1) Who will be the clients of the program?
- 2) Where will they come from?
- 3) What do they need/want?
- 4) How many of them are there?
- 5) To what extent can we stimulate demand?

Our conclusion from this analysis is that demand for incubation services by “local” entrepreneurs does exist and that we can identify important unmet services they require that could be provided with an incubation program.

6.1 Who will be the clients of the program and where will they come from?

Cecil County is positioned along the I-95 corridor north of Harford County and south of New Castle County/Wilmington, Delaware. Our analysis of the potential sources for clients in a Cecil County based incubation program necessarily considered these surrounding communities that already have established incubation programs. We have combined the discussion of who will be clients and where they will come from as the two subjects are highly intertwined.

The Harford Business Innovation Center (HBIC) (<http://harfordbic.com/Home.php>) is located on Route 40 in Havre de Grace, Maryland. The recently relocated facility is strategically positioned just outside the main gate of Aberdeen Proving Ground (APG). The Center serves all of Harford County and seems to be heavily oriented toward serving entrepreneurs seeking to leverage the presence of APG, as evidenced by the Center's new location.

The Delaware Technology Park (DTP) (<http://deltechpark.org/>) is located in nearby Newark, Delaware and proximate to the campus of the University of Delaware. DTP offers an incubation program as well as 3 multi-tenant buildings. They have announced a fourth multi-tenant building with 10,000 sq. ft. of wet lab space. DTP targets companies with a desire to be near the University of Delaware and who want to grow in a shared cluster environment. DTP focuses on the life sciences, advanced materials, information technology and renewable energy sectors.

In our interviews with key regional stakeholders, we developed some qualitative insights into what might be the sources for clients for a Cecil County Incubation Program. In the view of the Axcel team, it seems unlikely Cecil County will experience a large influx of entrepreneurs who currently reside in either Harford or New Castle Counties given the presence of existing incubation programs in those locations and their proximity to potential technology start-up drivers like APG and the University of Delaware. The "expensive" I-95 highway tolls were also often cited as a deterrent to the free flow of entrepreneurs throughout the region. It is important to note however that there have historically been some companies that have located into the county from neighboring counties and that this might be expected to continue at a low level.

There are nonetheless a number of potential sources within the county:

- ◆ Students enrolled in Cecil College
- ◆ Students attending the Cecil County School of Technology
- ◆ Medical device and medical software innovators desiring to leverage collaborative opportunities with Union Hospital and its shared risk healthcare re-imbursement model
- ◆ Employees of existing companies in the County who may aspire to create their own business
- ◆ County residents retiring early from larger employers in the region such as APG, ATK, Gore and DuPont
- ◆ Regional entrepreneurs who would prefer a Cecil County location and incubation program offering versus those available at the Delaware Technology Park or the Harford Business Innovation Center.
- ◆ County residents who currently commute to jobs outside the County

6.2 How many of them are there?

The potential sources of entrepreneurs outlined in Section 6.2 are useful in qualitative terms in that they identify where the people who might start a new company might come from. Quantifying the potential scale of each of these potential sources is difficult to do, but there are methods that provide a means of doing so at the level of the population as a whole:

- ◆ Work undertaken by the Kauffman Foundation, which specializes in studying entrepreneurship, provides a means to estimate the number of people within a given geography would be expected to start a new business at any given point in time. The data from the Kaufmann foundation indicates that in Maryland, 0.28% of the population would be in this category.
- ◆ Another means for estimating the number of potential new companies that might be created is to determine the rate at which new companies have previously been created and extrapolate this forwards in time. Data is available at the state level for the number of new business created annually, and this can be used to project the number of businesses that might be expected to be created at the County level by scaling the data using either the percentage of the state population within the county, or the County's share of the total number of businesses in the state. This method also allows projections to be made for specific NAICS code groups.
- ◆ A further indicator of potential entrepreneurial activity within a region is the number of patents granted per capita. A recent business best seller, *Startup Nation*, discusses how the Country of Israel with less than 8 million residents became the world leader in high-tech start-ups per capita with a larger venture capital industry per capita than any other country in the world including the US.

As reported in Section 3, an estimated 22 patents per 10,000 of population are issued to residents of Cecil County. That ranks Cecil County third in the State of Maryland behind only The City of Baltimore and Montgomery County - two much larger, urban population centers. Many Cecil County residents work in Harford and New Castle Counties and work for companies such as APG, Gore, DuPont and other innovative organizations. Experience suggests that people will tend to create companies in the location where they live, and so these innovators are a strong potential source of entrepreneurs for the County.

Figure 6.1 provides a summary of an analysis using the Kaufman data as a basis, and also using the historical company birth rate data for Maryland as described above. Given the specific interest as expressed in the Request for Proposals for the current study in Manufacturing and Technical companies, and those in Transportation and Logistics, the data have been calculated separately for these two industry sectors:

Estimation Method	Manufacturing / Technical Companies	Transportation / Logistics Companies
Historical data (based on establishments)	23	8
Historical data (based on population)	39	14
Kauffman Entrepreneurship Index	42	15

Figure 6.1: Estimated annual numbers of new companies that might be formed in Cecil County annually

Thus the total number of new Manufacturing / Technical companies would be expected to be in the range 23 – 42 per year, and between 8 and 15 companies in Transportation and Logistics.

A Cecil County incubation program could be very attractive to entrepreneurs targeting these and related industry sectors. Given the nature of the industry base in Cecil, it would be expected that many of these companies would have a strong technical focus (particularly in chemistry and engineering, as evidenced by the patent data) but a key to capturing the full entrepreneurial potential of a locality or region is to seek to be as inclusive as possible, and experience suggests that new companies in Cecil County could in practice be in any industry sector.

6.3 What do they need/want?

The specific needs of entrepreneurs may be dependent to some extent on the nature of the business that they intend to create, particularly with respect to some highly technical markets such as medical devices. It may not be realistic to seek to anticipate these needs by creating dedicated specialist resources at the outset although it may be justified to do so in the longer term if particular resources that would be of use to more than one company can be identified.

At a less specialist level however, the needs of entrepreneurs are well established:

- ◆ They are often highly qualified in technical fields but may lack experience in other disciplines. Even where a team of two or three people found a company, it is unusual for them to have experience in all the key areas that they will need to manage if the business is to be successful. Training, advisory, and mentoring services are therefore of great value.
- ◆ Entrepreneurs benefit from being able to share experience with, and learn from their peers. They also benefit from connecting with other businesses and service providers that may be able to form part of their supply chain or distribution networks, or

otherwise support the businesses. Opportunities for networking are therefore highly valuable.

- ◆ The needs of early stage companies can change over relatively short time scales, and so access to resources on a highly flexible basis is of great value. This is particularly the case with respect to physical space from which they can operate but may also extend to other resources necessary for their business. For this reason, space which can be utilized without the need for long-term leases or commitments, and space that can be scaled up or down in response to the needs of the business are highly valuable.
- ◆ Finance is a critical need. Most new businesses are initially financed through the resources of the founders in their early stages, and this may continue for some time, putting pressure on the entrepreneurs. Contrary to popular perception, only a very small percentage of new companies receive venture capital funding or funding from business angels, and few, if any banks will make loans to new companies without personal guarantees from the founders, which may be difficult to provide, particularly if home equity has already been leveraged to support the business. Consequently, the availability of cost-effective resources is a critical issue. This may relate to the availability of low-cost space from which the entrepreneur can operate, or simply space the cost of which can be scaled in response to the needs of the new company. For this reason, co-working space and other flexible space solutions can be extremely useful to entrepreneurs.

In summary, the core needs that should be addressed by any program aimed at supporting entrepreneurship in Cecil County should include:

- ◆ Mentoring and advisory services
- ◆ Assistance with financial planning and access to sources of finance
- ◆ Training and education programs
- ◆ Coordination and support for networking groups and associated events
- ◆ Flexible space
- ◆ Low cost space

6.4 To what extent can we stimulate demand?

A further key to capturing the full potential that exists within any location is to embed the idea of entrepreneurship within the whole community, and in particular with its younger members. Many entrepreneurship initiatives have been created to engage and encourage children of school age, and many children can become quite technically proficient by the time they are in high school, particularly but not only in computer science and engineering-related fields. Providing opportunities for children to learn

about and experience the entrepreneurial process in a low-risk environment is a highly valuable investment in the economic future for the longer term and can sometimes also lead to the creation of viable businesses in the shorter term.

The presence of an entrepreneurship initiative or incubation program can of itself also act as a stimulus to the individuals to pursue an entrepreneurial pathway. The following figure illustrates four distinct phases that entrepreneurs often pass through when considering the creation of a new business, starting from the first 'nascent' phase shown at the bottom of the diagram to 'committed' at the top.

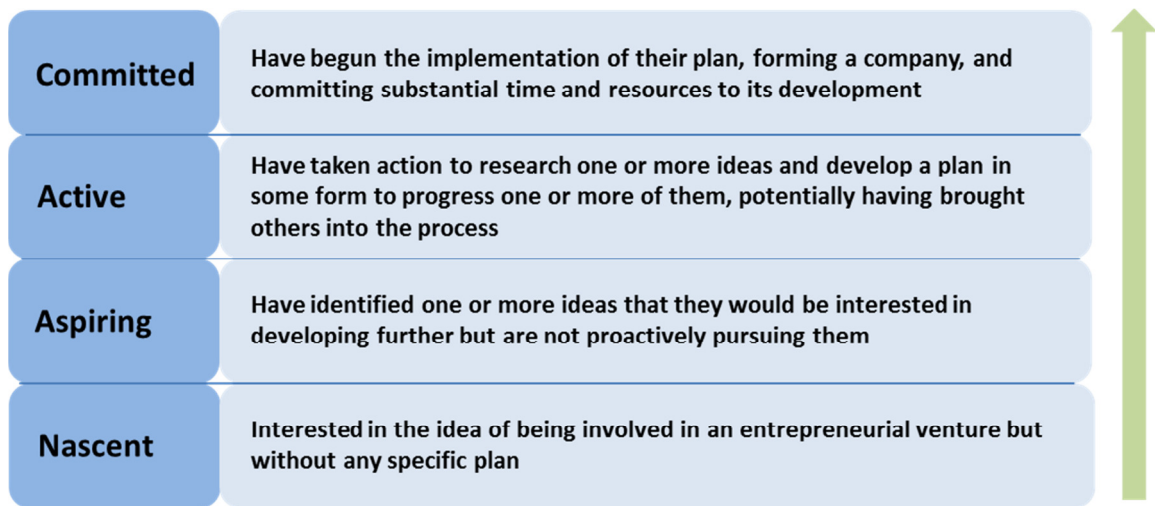


Figure 6.2: Summary of different phases through which entrepreneurs pass when establishing a business.

Many incubation programs have historically focused primarily on those at the top of the diagram – the 'committed' entrepreneurs who have already begun the implementation of their plan, with selection criteria that would exclude many of those at an earlier stage. This is in part because such programs have typically been designed to support a relatively small number of companies on-site at the incubator which lease office units or other space solely for their use. This approach makes the amount of available space the limiting resource, and in effect requires the incubator management team in some way to pick those companies that are believed to have the greatest chance of success. Not only does this lead to other companies that might be successful being excluded, but it is predicated on the ability of the incubator management team to be able to pick the 'winners' – something which has proven to be notoriously difficult – even more so than with the stock market in general.

Providing support for entrepreneurs at the earliest stages of their entrepreneurial pathway not only stimulates demand for the later stages, but increases the likelihood that more companies will be created overall, some of which will have the potential for significant growth.

7. Conclusions

In this section of the report we present our conclusions from Phase 1 of the study. Our recommendations, based on these conclusions are presented in the final section, Section 8, which follows.

7.1 Economic Development Purpose

A vital foundation for any planned economic development initiative is for it to be clearly linked to, and supportive of, the core mission and economic development strategy of the location where it is to operate. The reference point in the present case is the documented economic development strategy for Cecil County, which defines a vision and a set of values in addition to specific strategic priorities.

The creation of an initiative to support entrepreneurship is consistent with all of these, and addresses specific elements as follows:

- | | |
|---|--|
| <ul style="list-style-type: none"> • Vision <ul style="list-style-type: none"> – A place of opportunity for all – Economic vitality – Quality education • Values <ul style="list-style-type: none"> – Collaboration – Citizen Involvement – Fiscal responsibility | <ul style="list-style-type: none"> Strategy <ul style="list-style-type: none"> • Educational opportunities • Fiscal stability • Quality of Life • Economic Development <ul style="list-style-type: none"> – Job creation – Business development – Community revitalization • Diversity in economic base • Unemployment • Mixed use communities |
|---|--|

Most of these linkages are essentially self-evident, although some are possibly more indirect:

- ◆ Under 'Vision', support for entrepreneurship can contribute to a quality education by exposing school children to the possibility of an entrepreneurial pathway at a time when traditional career structures are rapidly disappearing in many industries.
- ◆ Under 'Values', while potentially requiring some financial support at the County level, support for entrepreneurship should ultimately be expected to generate a significant net positive return through the creation of new businesses and new jobs, generating additional tax revenue and creating wealth that will be recycled within the County economy.

- ◆ Under 'Strategy', a diverse and thriving entrepreneurial community can support fiscal stability by creating an additional growing tax base for the County. It can also contribute to community revitalization by creating companies that bring disused or under-utilized facilities back into use and by creating local jobs.

The overall economic development objectives for an incubation program or related initiative within the County can be summarized as:

- ◆ Creating companies and jobs that are strongly anchored to the County, building on the existing industry base and diversifying into new markets and sectors, providing economic vitality and growth within the County.

7.2 Key Opportunities

There are several distinctive elements that exist within the County that have become apparent in the analysis undertaken for Phase 1, which will contribute to the process of defining the appropriate model and implementation plan for the proposed incubator, which will be the subject of Phase 2 of the work program. These are:

- ◆ The presence of Union Hospital, which has indicated an unusually high level of interest in working with new companies that are developing relevant products and services
- ◆ The willingness of the Cecil County Chamber of Commerce to engage with the incubator concept and support the initiative
- ◆ The presence of Cecil College which already offers workspace to some local companies
- ◆ The substantial percentage of the population that commutes out of the County on a daily basis, often beyond the immediately neighboring counties. These commuters represent a potentially significant pool of entrepreneurial talent.
- ◆ The presence of a strong transportation and logistics capability within the County which is highly consistent with the increasing utilization of widely geographical supply chains and distribution networks being used even by small companies
- ◆ The opportunity to leverage the presence of academic institutions and industry in New Castle County and Harford County in positioning Cecil as node in a broader regional economic network

These opportunities will be factored into the plan developed in Phase 2 of the work program

7.3 Key Challenges

The interview program and research undertaken suggest that there are several challenges that must be addressed by any proposed plan for an incubation program within Cecil County:

- ◆ **Changing Perceptions**

A significant percentage of the working age population of the county commutes to jobs in other locations. The interview program suggests that there is a perception that Cecil County is a 'bedroom community' and lacks the infrastructure to support the creation of new businesses. This is clearly something that an incubation program would be intended to address, but if broadly held, this perception will need to be overcome if the full potential for business creation is to be realized.

- ◆ **Engaging Large Companies**

The large companies present in the county represent a very substantial asset in ways discussed in earlier sections of this report, but in order to realize the potential benefits that they can bring to the entrepreneurial ecosystem, it will be necessary to engage with them and gain their support. This need not necessarily mean financial support – having the endorsement of large companies can lend credibility to entrepreneurship programs and create a sense of there being a community-wide effort to build the foundations of the future economy of the County. This is not to dismiss commitment to the County made by these companies – Orbital ATK in particular has supported a range of economic development and training initiatives in the County – but that public support will add considerable value to the promotion of the program and the attraction of the entrepreneurs on which its success will depend.

- ◆ **Resource Efficiency**

The creation of an incubation program requires the commitment of resources, although as discussed in Section 2, the level of resources required is less than would once have been the case. It will nonetheless be necessary for some space to be made available for use by the clients of the program, and for staff resources to manage it and the relationships with the client population and partner organizations, and to promote the program. The available options will be reviewed in Phase 2 of the work program and the most cost-effective approach identified.

7.4 Potential Models

As noted in earlier sections of this report, the nature of entrepreneurship has changed in recent years, and the established incubator model is no longer the ideal solution to supporting entrepreneurs.

One response to the changes that have taken place is the development of what are known as 'Co-working Spaces'. These are largely open-plan spaces, providing internet connectivity, shared worktables and / or individual workstations, ample power outlets, and an appropriate environment for people to read, write, and work on computers. They are generally well-lit and relatively quiet, with most providing individual phone booths with a degree of soundproofing which people can make use of when they need to make phone calls. It is assumed that users will use their cell phones or tablets for making calls and so the booths do not include actual phones, but provide a space, often with a chair and a shelf on which a laptop can sit, from which calls can be made with a degree of confidentiality. Some such spaces are created at very low cost and have a somewhat basic character – often with trestle tables and basic furniture – but many are equipped with high quality office furniture and fittings. In any case, these are proving to be highly popular with people who work remotely and with entrepreneurs at the earliest stages of the business creation process (the 'Nascent' or 'Aspiring' stages as shown in Figure 6.2). What co-working spaces generally do not offer however are any additional support services for entrepreneurs such as mentoring, training programs, or other business assistance.

A further model which is relevant in the context of business incubation is the provision of multi-tenant space. This is space that is somewhat similar to the established incubator space in that it comprises individual office units that are available for use by companies, but as with the co-working space, provides no business support services, and as such addresses only a limited set of the typical needs of entrepreneurs.

The following figure illustrates where each type space may be most appropriate for different stages of the entrepreneurial process:

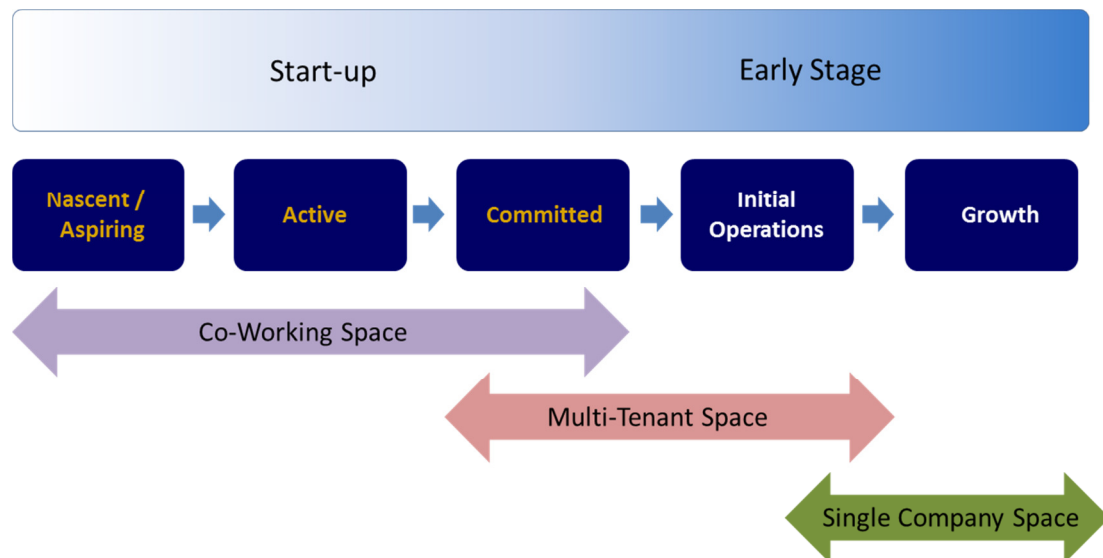


Figure 7.1: Space requirements for different stages of the entrepreneurial process

An important benefit in co-locating companies (and individual entrepreneurs) is the opportunity that this can create for ad-hoc networking, sharing of experience, and in some cases, opportunities for collaboration. The extent to which this will happen without assistance can vary. In co-working spaces, which are inherently more open than facilities leasing individual offices, there is likely to be more ad-hoc contact, but even then, individual users may often keep themselves to themselves. For this reason, in many cases, in-house networking events are organized specifically for the purpose of getting users to interact and learn about each other’s activities.

The following chart summarizes these different models along with their pros and cons, and also shows a further model that combines elements of several of the other approaches, and may be relevant to Cecil County

Model	Pros	Cons
Traditional incubator	<ul style="list-style-type: none"> • Can be good for companies needing specialist facilities 	<ul style="list-style-type: none"> • Not suited to large client population • Less relevant to contemporary start-ups • Challenging financial model
Co-working Space	<ul style="list-style-type: none"> • Highly flexible • Can support large client population • Limited financial support required • Can be coupled with multi-tenant space 	<ul style="list-style-type: none"> • Does not address need for services (mentoring, business advisory, etc.)
Co-working Space + Services	<ul style="list-style-type: none"> • As above but provides client services • Provides focal point for service delivery • Provides strong marketing message • Ensures access to relevant services • Financial support focused on services • Can be highly cost-effective 	<ul style="list-style-type: none"> • Requires client management resource
Multi-tenant Space	<ul style="list-style-type: none"> • No staff or services overhead • Can work well for companies past the initial planning / start-up phase 	<ul style="list-style-type: none"> • Not appropriate for the earliest-stage start-ups or individual entrepreneurs • Limited scope for networking
Co-working + Services + Multi-tenant Space	<ul style="list-style-type: none"> • Provides a pathway from the earliest stages of the entrepreneurial process • Scalable 	<ul style="list-style-type: none"> • Additional space requirement

Figure 7.2: Comparison of different approaches to support for entrepreneurs

7.5 Potential Partners

The successful implementation of an initiative aimed at supporting entrepreneurs is dependent on the extent to which it can be seen and operated as a community-wide enterprise, and it is important to develop partnerships that support this. A number of organizations have expressed interest and willingness to support the proposed incubation program during the interview program, as follows:

- ◆ NEMD Tech Council
- ◆ Union Hospital
- ◆ MEDCO
- ◆ TEDCO
- ◆ Cecil College
- ◆ Cecil County Public Schools
- ◆ Harford Community College
- ◆ Cecil County Chamber of Commerce

These organizations have proposed a variety of ways in which they could engage with and support the program, and these will be explored in more detail in Phase 2 of the work.

7.6 Potential Scale

As discussed in Section 6, quantifying demand for incubation programs at a detailed level is extremely difficult, and for that reason three different approaches to quantifying the demand for the proposed program were used, providing a range for the number of possible participants, and providing a sense of the potential scale for the initiative.

These figures can be used to provide a sense of the levels of activity that might be achieved in the program over time, recognizing that with any program, interest and activity are likely to build as awareness grows, and as positive outcomes are seen to be achieved. The following chart provides a simple summary of how the client population might develop, with an increasing number of new clients each year, some of whom will 'graduate' by moving on to other locations within the County as they grow, and some of whom will leave the program for other reasons.

	Year 1	Year 2	Year 3	
New clients	36	48	60	144
Clients leaving	12	30	41	83
Clients graduating	2	6	8	16
Continuing clients	22	34	45	

Figure 7.3: Summary of potential levels of client activity

In the latter context, it is important to recognize that the purpose of support for entrepreneurs is to support them in developing and market testing their business concept, and it is an entirely legitimate outcome for an entrepreneur to conclude that their idea is not viable, and to discontinue its development.

Evidence from the Kaufman Foundation and venture capital organizations actually suggests that the experience gained from exploring ideas and discontinuing those that do not look viable at as early a stage as possible is a key factor in arriving at a business concept that does have the potential to succeed. As such, it is to be expected that a

significant number of the clients of the program will decide to discontinue their idea, but these should be treated as learning experiences rather than failures, with many of the entrepreneurs involved likely to re-enter the program with a new idea at a later date.

7.7 Performance metrics

The question of performance metrics is a critical one for incubation programs. Failure to define at the outset what the appropriate metrics are can lead to situations where a program is deemed to have failed simply because in the absence of an agreed set of metrics there is no objective measure of success.

The metrics used should link directly back to the core purpose of the initiative, some of which may be more easily quantified than others, but all of which should be acknowledged. In the present case, we suggest the following as appropriate performance measures:

- ◆ **Direct** (measurable at the individual company level):
 - Job creation
 - Capital raised
 - Grant funding and contracts attracted
 - Products and services launched
 - Patents utilized
- ◆ **Indirect** (measurable in aggregate)
 - Development and growth of target industry sectors
 - Industry and geographical market reach of client companies
 - Contribution to the County tax base
 - Reduction in Commuting
 - Community revitalization

These will be reviewed and further developed in Phase 2 of the work program.

8. Recommendations

In the view of the Axcel team, there are a number of compelling reasons why the creation of an incubation program is a good idea for Cecil County. These are discussed in detail in this report, but in particular the program has the potential to:

- ◆ Help to create companies that are likely to remain anchored within the county
- ◆ Diversify the industry and employment base of the county
- ◆ Provide opportunities for county residents who currently commute to other locations to work near where they live
- ◆ Build a broader awareness of the opportunity for entrepreneurial career paths which are likely to become increasingly important in the future
- ◆ Provide opportunities for commercialization of intellectual property developed within the county
- ◆ Provide opportunities for training and work experience for students within the county
- ◆ Create a community-wide partnership that will strengthen existing relationships and provide benefits to all organizations involved

It is therefore our recommendation that the detailed plan for the establishment of an incubation program in Cecil County as defined for Phase 2 of the work should be initiated.

In developing the plan, the approach should explore the different roles that the various potential partners may fill, including how the various resources of each organization can be leveraged to greatest effect and mutual benefit.

Based on the analysis undertaken, it is also recommended that the model should encompass a range of different types of physical space, including co-working space, and multi-tenant space, in order to provide the greatest flexibility in meeting the needs of the client population.

Appendix 1: People interviewed for the study

Organization	Interviewee
1) Cecil College	Dr. Mary Way Bolt
2) Cecil County Public Schools	Dr. D'Ette Devine
3) Cecil County Public Schools	Dr. Jeffrey Lawson
4) Cecil County Public Schools	Kelly Keeton
5) Cecil County Union Hospital	Dr. Ken Lewis
6) Cecil County Chamber of Commerce	Bonnie Grady
7) Harford County Economic Development	Karen Holt
8) Harford Community College	Dr. Dennis Golladay
9) MD Department of Business and Economic Development	Ursula Powidzki
10) MD Department of Business and Economic Development	Tammy Edwards
11) MD Department of Business and Economic Development	Heather Gramm
12) MD Technology Development Corporation (TEDCO)	Neil Davis
13) Maryland Economic Development Corporation (MEDCO)	Bob Brennan
14) Northern Maryland Technology Council	John Casner
15) Northeast Maryland University Research Park	Danny DeMarinis
16) Orbital ATK	Michael Lara
17) University Center of Northeastern Maryland	Nancy Spence
18) University of Delaware	Andy Lubin
19) University of Delaware	Mike Bowman
20) Upper Shore Regional Council	Doris Mason
21) W L Gore & Associates, Inc.	Linda Riondet

In addition, Lisa Webb and Susan O'Neill of Cecil County Office of Economic Development, and Norman Gaither of NorArk Executive Group who is a member of the Cecil County Economic Development Commission, also provided input to the study